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**SocioEconomic Characteristics  
Of The All Volunteer Force:  
Evidence From The  
National Longitudinal Survey, 1979**

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VOLUNTEER FORCE: EVIDENCE FROM THE  
NATIONAL LONGITUDINAL SURVEY,  
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levels, aspirations, and expectations, job problems and characteristics, job satisfaction.

Numerous policy inferences, particularly relating to recruitment and retention, can be drawn from the results of these studies. Among them are:

Reinstitution of post-service educational benefits is unlikely to attract higher quality personnel into the Armed Forces. Our results show that large numbers of those with high educational aspirations and expectation already join the service. Post-service educational benefits probably would be widely used by those who join the service but most of these individuals would have joined anyway. It appears doubtful that such benefits would induce large numbers of high quality people to volunteer who would not have done so without them.

Programs designed to make it easier and cheaper to pursue further education while on active duty may be useful in promoting retention. Educational aspirations among those in the military are particularly high. These people may stay in the service to satisfy these aspirations.

Manpower quality improvement cannot come to any significant degree by recruiting "representative" quality manpower. If improved quality, as measured by education, training, health etc. is necessary to the mission of the armed forces, it must come by procurement of above average quality personnel.

The potential recruiting pool, defined to include those who have expressed some interest in serving, is neither small nor of particularly poor quality relative to the total age cohort. Efforts should be directed toward arresting the decline in interest as age and school grade increases, however, perhaps by establishing contact earlier.

Job satisfaction in the military is low compared to job satisfaction in the civilian labor market. The difference in satisfaction does not relate to the type of individual recruited, but to selected aspects of the job itself.

Vocational training earns small premiums in the military, as compared to the civilian labor market. The small size of rewards of vocational training in the military suggest strongly the continued need for reenlistment bonuses to keep the military competitive with the civilian labor market.

Consideration should be given to rewarding additional education if, in fact, education is perceived to be related to productivity in the military.

SOCIOECONOMIC CHARACTERISTICS OF THE ALL  
VOLUNTEER FORCE: EVIDENCE FROM THE  
NATIONAL LONGITUDINAL SURVEY,

1979

EXECUTIVE SUMMARY

This report contains six separate, although related, studies. Each study compares young male members of the all-volunteer force as of 1979 either with men of the same age cohort who are not serving or with those too young to serve at the time of the survey. The studies are cross sectional. They address the following areas:

- socioeconomic characteristics
- attitudes and intentions to serve of 14 to 17 year old males
- vocational training
- educational levels, aspirations, and expectations
- job problems and characteristics
- job satisfaction

This section, the Executive Summary, covers each study in brief. It also contains a short discussion of policy implications.

Data

The data are drawn from the first year of the National Longitudinal Survey of Labor Force Behavior, Youth Cohort, 1979. This data set contains 2179 items of information collected by personal interview in 1979 on 6398 males, ages 14 to 22. The sample is a nationwide stratified sample. Those in the military, blacks, Hispanics, and economically disadvantaged whites are oversampled to enable disaggregated analysis. Weights are available to correct for the oversampling.

### Summary by Study

#### Study 1: Socioeconomic Characteristics of the Volunteer Force: A Comparison Those Who Serve and Those Who Don't

This study compares 18-22 year olds serving in the military with those in the same age cohort not serving. The two groups are compared using sets of background variables and personal characteristics. Whites, blacks, and Hispanics are examined separately. The military vs. civilian comparison is extended by separating the civilian group into those who had not expressed an interest in serving and those who had expressed such interest as evidenced by contact with recruiters. Socioeconomic comparisons among the resulting three groups use the same background and personal characteristics. Again, whites, blacks, and Hispanics are examined separately. For those in the military, comparisons of socioeconomic characteristic by branch of service were also made. Finally, comparisons were made between those actually serving in a particular branch and those who expressed interest in serving in that branch. The multivariate statistical technique used throughout the study is discriminant analysis.

#### Results include:

- Regarding socioeconomic backgrounds of members of the all volunteer force compared to others in their age cohort:
  - + Serving whites are from below average socioeconomic backgrounds; serving blacks are from representative or above average socioeconomic backgrounds; Hispanic servicemen are reasonably representative except that foreign born Hispanics are underrepresented.
  - + Serving whites are from lower socioeconomic backgrounds than those who expressed interest in serving but did not join; the latter group is from lower backgrounds than those who expressed no interest in serving.
  - + Blacks serving in the Air Force are from above average backgrounds as compared to blacks in other services.

- + Whites serving in the Army are from below average backgrounds as compared to whites in other services.
- Regarding quality as measured by education, training, health, and other variables:
  - + Serving whites are of lower quality than non-serving whites; serving blacks are clearly of higher quality than non-serving blacks; serving Hispanics are of equal or higher quality than non-serving Hispanics.
  - + Serving blacks are of higher quality than non-serving blacks who expressed interest in serving, who in turn are of higher quality than non-serving blacks who expressed no interest in serving.
  - + Both blacks and whites serving in the Air Force are of higher quality than their counterparts serving in the Army and Navy.
- Regarding educational aspirations as measured by desired level of schooling:
  - + Across racial/ethnic groups and within each branch of service, those serving consistently express higher educational aspirations than those not serving. See Chapter 4 for details.
  - + Among all variables tested, higher educational aspirations most clearly separates white servicemen from whites who expressed interest but did not join.
- Regarding interest in joining:
  - + With respect to quality and socioeconomic background, members of the Army are less like those who expressed an interest in the Army but did not join, than is true of either the Air Force or Navy servicemen when compared to those interested in those services.

#### Study 2: Youth Attitudes Toward the Military and Intentions to Serve

The focus of this study is on males 14-17, i.e. those too young to serve as of the survey in 1979. Comparison of socioeconomic characteristics is made between those who have expressed interest in service and those who have not. Patterns of interest across age and school year groups are examined. Whites, blacks and Hispanics are considered separately. Interest in service is defined

by responses to two survey questions. The first concerns the respondent's attitude toward service by young people in general; the second inquires whether the respondent himself expects to serve. Eight combinations of responses to these questions are interpreted as grouping respondents by intensity of interest in serving. Comparison is also made between those serving and those too young to serve who express interest in serving.

Results include:

- In general, for those too young to serve
  - + A substantial number of young males in all three racial/ethnic groups express a fairly strong interest in serving, and a majority in each group expresses a favorable attitude toward service by young people. There is little difference among the three groups with respect to the proportion expressing a favorable attitude, but a significantly larger proportion of blacks and Hispanics, as compared to whites, actually expect to serve.
  - + Those who express an interest in serving but are too young are from less middle class backgrounds than those who are actually serving.
  - + The proportion of males from military families who actually serve is greater than the proportion of those from military families who express interest but are too young to serve.
- For whites too young to serve:
  - + Those who express interest in service are from somewhat below average socioeconomic backgrounds compared to those who express no interest.
  - + Interest in service declines as age and school grade increases.
  - + The socioeconomic backgrounds of those who are interested at 17 are lower than is true of those expressing interest at ages 14 and 15.
- For blacks and Hispanics too young to serve:
  - + Those interested in serving and those not interested are from similar backgrounds.

- + Interest among blacks does not decline with increasing age and school grade.
- + Socioeconomic characteristics of those interested at age 17 are similar to the characteristics of those who express interest at ages 14 and 15.

### Study 3: Vocational Training

In this study, comparison between the civilian and military sectors is made of the effects of vocational training on earnings using a human capital approach. Data limitations require that separate multiple regression equations be specified for the two sectors. Racial/ethnic group effects are included.

Results include:

- Civilian sector:
  - + Private sector vocational training, years of education and labor force experience are important explainers of variation in income, indicating positive returns to investment in human capital.
  - + Blacks and Hispanics earn less than whites, other things equal.
- Military sector:
  - + Primary vocational training is associated with higher earnings but the payoff as a percentage of earnings is much smaller than the payoff to vocational training in the civilian sector.
  - + Black earnings are comparable to those of whites, other things equal.
  - + Education is not associated with earnings.

### Study 4: Comparison of Educational Levels, Educational Aspirations, and Educational Expectations of Military and Non-Military Males Age 18-22

In this study, differences between servicemen 18-22 and males of the same ages who never served are examined with respect to three dimensions of manpower quality: educational levels, aspirations, and expectations.

The analysis is disaggregated by racial/ethnic group, and by branch of service.

Results include:

- Regarding level of education:
  - + Among whites, the military group averages fewer years of education than the civilian group, but contains more high school graduates.
  - + Among blacks and Hispanics, the military group averages more years of education and contains proportionately more high school graduates than the civilian group.
- Regarding educational aspirations:
  - + Serving members of all three racial/ethnic groups have aspirations for more years of education than their civilian counterparts. This result holds when the civilian group includes those who went directly from high school to college, and it holds even more strongly when those in college are omitted. The result also holds in a multivariate context.
  - + Among blacks and Hispanics, larger fractions of the military samples aspire to complete some post college schooling than non-serving blacks and Hispanics. This result does not hold for whites.
- Regarding educational expectations:
  - + Serving members of all three racial/ethnic groups actually expect to get, as distinct from aspiring to, more years of education than their civilian counterparts. This result also holds when college students are included in the civilian sample, and in a multivariate context.
  - + Servicemen in all three racial/ethnic groups are somewhat less likely to expect to fulfill their educational aspirations than are their civilian counterparts.
- By branch of service:
  - + Members of the Army have lower levels of education, educational aspirations, and educational expectations than those in the Navy, who in turn have lower levels than those in the Air Force.
  - + Army personnel, like those serving in other branches, have higher aspirations and expectations than those who have never served.

### Study 5: Job Problems and Characteristics

This study reports on differences between servicemen and civilians who have never served with respect to problems faced in finding good civilian jobs, and with respect to opportunities offered by the job presently held. Information on civilian labor market problems is based on a series of 12 survey questions identifying specific difficulties the respondent has had in getting a good job. Questions included, for example, whether racial discrimination, age discrimination or lack of transportation caused civilian labor market difficulties. Information on opportunities offered by jobs presently held is based on responses to a series of seven questions phrased, ". . . how much opportunity does this job give you (CATEGORY)? Categories include, for example, "to do a number of different things" and "to develop close friendships." Four responses, from "a maximum amount" to "a minimum amount" were available to respondents. Blacks and whites are examined separately with respect to their perception of opportunities available. Limited disaggregation by service is also presented.

#### Results include:

- Regarding job problems:
  - + Young men cite age discrimination and lack of transportation more often than any other factors.
  - + White servicemen report experiencing job search problems more often than non-serving whites.
  - + Black servicemen report job problem experiences similar to those of non-serving blacks and report having job problems somewhat more often than do serving whites.
  - + Those serving in the Army report a greater incidence of civilian labor market problems than do those in other branches. Those serving in the Air Force report experiences more similar to the civilian sample than do those serving in other branches.



- Regarding job opportunities:

- + Overall, perceptions of opportunities offered by current job differ little between servicemen and those in the civilian labor market. Significant differences do arise for individual categories. Servicemen, in general, perceive opportunities that are "people related" (for example, the chance to make friends); civilians are more likely to cite opportunities for variety and autonomy.
- + Whites perceive more opportunities than blacks in both the military and civilian sectors. Black responses are more similar to white responses in the military than in the civilian sector.
- + Members of the Air Force rate their jobs as providing more opportunities than do those in the civilian labor market; members of the Navy and the Marine Corps rate their opportunities similarly to civilians; members of the Army give their jobs relatively low ratings.

#### Study 6: Job Satisfaction: Military vs. Civilian

This study compares reported levels of job satisfaction of 18-22 year old military personnel and those of the same age in the civilian labor force. Disaggregation by racial/ethnic group and by branch of service is integrated into the analysis. Overall job satisfaction is defined by the survey question, "How do you feel about your job now? Do you like it very much, like it fairly well, dislike it somewhat, or dislike it very much?" Three scales were constructed using the responses to these questions. The analysis also uses responses to a series of survey questions regarding attributes of the respondent's job, for example, "the chances of promotion are good..." or "the physical surroundings are pleasant..." Regression analysis is used to explore the determinants of overall job satisfaction differences between military and civilian workers. Independent variables include both responses to job attribute questions mentioned above, and socioeconomic and labor force experience variables.

● Results include:

- + Serving whites and blacks score lower on overall job satisfaction scales than do non-serving whites and blacks respectively.
- + White job satisfaction is greater than black job satisfaction in the civilian labor market, but there is no statistical difference between the two in the military.
- + Regression analyses suggest that being in the military does not, per se, reduce job satisfaction. Differences in overall satisfaction are accounted for by differences in perceptions that income is good, that surroundings are pleasant, that one is given a chance to do one's best, and that experience has carryover value. A variable representing military service and variables interacting the above elements with military status were not significant. Thus it can be concluded that differences in satisfaction between those serving and those not serving can be mainly attributed to the elements listed and not to being in the military apart from such perceived differences in the nature of jobs. These results hold for regressions using two of the three scales.
- + A small group of servicemen who are very satisfied with their jobs appears to be responding to determinants of job satisfaction which are somewhat different from those of the civilian population and different from those of others in the military.
- + Marital status and race are significant determinants of job satisfaction. Married men are more satisfied with their jobs; black men are less satisfied. However, variables interacting these elements with military service have similar coefficients but opposite signs, leading to the conclusion that being a married serviceman or a black serviceman exerts no independent effect on job satisfaction. For the most part differences in satisfaction between those serving and those not serving are not attributable to differences in socioeconomic characteristics or labor force experience between the two groups.
- + Membership in a particular branch of service was found to exert no independent effect on job satisfaction.

Policy Implications

Numerous policy inferences, particularly relating to recruitment and retention, can be drawn from the results of these studies. Among them are:

- + Reinstitution of post-service educational benefits is unlikely to attract higher quality personnel into the Armed Forces. Our results show that large numbers of those with high educational aspirations and expectation already join the service. Post-service educational benefits probably would be widely used by those who join the service but most of these individuals would have joined anyway. It appears doubtful that such benefits would induce large numbers of high quality people to volunteer who would not have done so without them.
- + Programs designed to make it easier and cheaper to pursue further education while on active duty may be useful in promoting retention. Educational aspirations among those in the military are particularly high. These people may stay in the service to satisfy these aspirations.
- + Manpower quality improvement cannot come to any significant degree by recruiting "representative" quality manpower. If improved quality, as measured by education, training, health etc. is necessary to the mission of the armed forces, it must come by procurement of above average quality personnel.
- + The potential recruiting pool, defined to include those who have expressed some interest in serving, is neither small nor of particularly poor quality relative to the total age cohort. Efforts should be directed toward arresting the decline in interest as age and school grade increases, however, perhaps by establishing contact earlier.
- + Job satisfaction in the military is low compared to job satisfaction in the civilian labor market. The difference in satisfaction does not relate to the type of individual recruited, but to selected aspects of the job itself.
- + Vocational training earns small premiums in the military as compared to the civilian labor market. The small size of rewards for vocational training in the military suggest strongly the continued need for reenlistment bonuses to keep the military competitive with the civilian labor market.
- + Consideration should be given to rewarding additional education if, in fact, education is perceived to be related to productivity in the military.

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## INTRODUCTION

This report contains six separate, although related, studies of socioeconomic characteristics of young male members of the all volunteer force as of 1979 in comparison to characteristics of young males who were not serving. The data are drawn from the National Longitudinal Survey of Labor Force Behavior, Youth Cohort, 1979. In this introduction, we first discuss advantages and disadvantages of using the data set for assessing characteristics of the volunteer force and for addressing policy issues of concern to defense manpower analysts. Second, we provide a brief overview of the six studies and relationships among them.

### 1. Data

The National Longitudinal Survey (NLS), Youth Cohort, 1979 data set, collected in personal interviews, contains 2179 items of information for each of 12,686 men and women, ages 14-22 as of the interview, conducted in early 1979.<sup>1</sup> Approximately 92 percent of the interviews were conducted in February through May. The remainder were conducted during the summer. The sample is a nationwide stratified sample. In order to achieve useful sample sizes for selected subgroups, those serving in the military, blacks, Hispanics and economically disadvantages whites were oversampled. Weights are available in the data set to correct for the oversampling. The weights

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1. To be included in the sample, individuals had to be 14-21 on January 1, 1979. However a number of the respondents had their 22nd birthdays prior to interview.

provide a means to gross up the sample to provide totals representative of nationwide totals.<sup>2</sup> Table i shows unweighted sample sizes by sex, race and whether serving in the armed forces. For members of the armed forces, a breakdown by branch of service is also presented.

The data available to us for the studies here are data for the first wave of the panel. That is, only data for 1979, plus retrospective data gathered in the 1979 interviews, were available for this study. Thus, the analysis here is cross sectional in nature. The same individuals will be interviewed repeatedly over at least a five year period. The result will be a longitudinal data series on labor market experiences. In the present studies, longitudinal inferences can be, and are made, but more definitive examination of many of the problems discussed must await the availability of data from subsequent interviews.

The NLS data set has three important advantages relative to most other data sets available for examining characteristics of members of the volunteer force with the purpose of assessing such issues as most likely accessions, probabilities of retention, representativeness, and relative quality of those serving. First, and most important, it provides a civilian sample comparable to that of the military. Only with such a sample for

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2. In most of the analyses done for this study, the case weights are employed. Use of unadjusted case weights strongly biases tests of statistical significance, however, because such tests are based on the number of cases in the sample. The weighted numbers, representative of the national population, are much larger than actual numbers. In order to minimize such bias, the weight factors in the data are divided by divisors chosen to reduce the figures to levels approximating weighted values. It is these adjusted weights that are reported in the text. See Kim (12) for further discussion of sampling and weighting of the data.

TABLE i  
NATIONAL LONGITUDINAL SURVEY, YOUTH COHORT 1979  
UNWEIGHTED SAMPLE SIZES<sup>a</sup>

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Full Sample: 12,686

Males: 6398

White: 3793  
Black: 1606  
Hispanic: 999

Females: 6288

White: 3717  
Black: 1568  
Hispanic: 1003

Serving in the Armed Force: 794

White: 579

Army: 202  
Navy: 180  
Air Force: 132  
Marines: 65

Black: 162

Army: 106  
Navy: 14  
Air Force: 25  
Marines: 17

Hispanic: 53

Army: 24  
Navy: 14  
Air Force: 6  
Marines: 9

Serving in the Armed Forces: 423

White: 318

Army: 125  
Navy: 60  
Air Force: 111  
Marines: 22

Black: 81

Army: 59  
Navy: 7  
Air Force: 11  
Marines: 4

Hispanic: 24

Army: 15  
Navy: 1  
Air Force: 5  
Marines: 3

<sup>a</sup> White is a residual category which includes all non-black, non-Hispanic respondents.

comparison can issues of relative quality and representativeness be addressed. Further, although without a civilian sample inferences might be drawn regarding the characteristics of those who will join the service and probabilities of retention of those now serving, greater insights are gained when a civilian sample is used, because alternatives available to those who do not join, or who choose to leave the service, may be fully assessed.

A second advantage provided by the NLS data set is the exceedingly rich range of variables available. The data set is designed primarily to assess labor force experience over time. Traditional variables for such a purpose, such as income, hours and weeks worked, occupation and industry, education, father's occupation, marital status, and number of dependents are of course included. However, the 2179 items of information also include many variables far less often, if ever, available. By way of illustration, we note that the following items are included: responses to a series of questions regarding kinds of problems respondent has had in finding good civilian sector jobs; responses to a series of questions relating to root causes of job satisfaction or dissatisfaction; responses to questions regarding educational and occupational aspirations and expectations; amounts of food stamp assistance received during the last year, by month; amounts of unemployment compensation received in the last year, by month; detailed responses to question regarding the nature and extent of health problems, and the relationship of these problems to the respondents' employment; the nature and duration of any vocational training taken and whether that training is used on current job. There are, of course, many other variables. About three hundred variables were



used in the course of preparation of these studies. While we have used the key variables relevant to the problems we sought to analyze, we have by no means fully exploited the richness of the data set.

The third advantage of the NLS data set is its longitudinal nature. Longitudinal inferences need not be made from cross sectional data. Thus, for example, instead of assuming that today's 17 year olds will, when they reach 20, behave in the same way that today's 20 year olds behave, we will have observations of the same individuals at 17 and at 20. One illustration of the usefulness of such longitudinal data is the insight they can provide in predicting who will join the service in future years. We can examine a group of 14 year olds to discover which of them express early interest in joining the service. We can then follow these individuals to see which of them actually join. That information may in turn lead to redirection of recruiting efforts.

As we have noted, the present study can exploit only the first two of these advantages. The second wave of the cohort, for 1980, recently made available (November 1981) will allow the first longitudinal exploration.

The NLS data set has one disadvantage relative to some other data sets used for examining the volunteer force--it contains relatively few cases. The numbers are more than adequate for military vs. non-military comparisons, but possibilities for disaggregation are limited. Thus, detailed data are available on military occupational specialty, but the numbers in particular specialties are so few that statistical analysis is not possible. Even racial/ethnic disaggregation by branch of service results in some samples too small for statistical analysis, as can be seen on Table i.

## 2. Overview

The six chapters that comprise this study encompass several aspects of the comparison of characteristics of those in the military with those not in the military. The results are too diverse to be conveniently summarized here. Instead, we shall concentrate on explaining briefly the focus of the analysis in each case. Summaries are presented at the end of each chapter.

In Chapter 1, comparison is made between 18-22 year old males serving in the military and males in the same age cohort not serving. The two groups are compared using a set of background variables, a set of personal characteristics which includes several attitudinal measures, and a combination of the two sets. Whites, blacks, and Hispanics are examined separately. Also in Chapter 1, the military-civilian comparison is extended by dividing the civilian group into those who had at some time expressed interest in military service, and those who had not expressed such interest. Comparison among the resulting three groups is performed using the same background and personal characteristics. Again, comparisons are made for each of the three racial/ethnic groups. Finally, limited disaggregation by service is reported in Chapter 1. The analysis in this chapter provides evidence regarding the representativeness and relative quality of the volunteer force and provides information of potential use in designing recruiting strategy.

In Chapter 2, we focus on the group too young to join the service--those 14-17 years old. Several indicators of interest in serving in the military are developed. Differences in socioeconomic characteristics of those interested and those not interested are examined. Also considered are differences

in patterns of interest across age and school year groups. Further, a comparison of characteristics is made between those who are currently serving and those too young to serve who express interest in serving in the military in the future. Potentially, such a comparison can be useful in predicting which of those who express early interest in the military are most likely to join and which are most likely to choose other paths. The interest indicators that best predict subsequent behavior could be useful information in directing recruiting efforts. All comparisons in this chapter are disaggregated by racial/ethnic group.

The armed forces heavily advertise the training benefits accruing to those joining the services. In Chapter 1, we find that those who join the service are more likely to want more vocational training than those who do not join. Chapter 3 presents a human capital approach to returns to training, comparing returns in the military and civilian sectors. Such a comparison has implications for both recruiting and retention, because it suggests the alternative opportunities available to those serving. Black and white samples are analyzed separately.

Perhaps the most striking finding in Chapter 1 is that those in the armed forces have much higher educational aspirations than those not serving. This interesting finding, which has implications for policies relating to in-service and post-service educational benefits, is considered further in Chapter 4. Here we examine educational expectations as distinct from educational aspirations and explore the relationship between the two. Again the analysis is disaggregated by racial/ethnic group, and limited disaggregation by service is also reported.

In Chapter 1, we note that those who join the service report having had more problems in finding good civilian labor market jobs than those who do not join the service. In Chapter 3, we note that joining the service entails lower opportunity costs if civilian labor market problems are important. In Chapter 5, we examine in detail the job problems experienced by those in the service in comparison to those who do not join. Black and white samples are examined separately, and limited disaggregation by service is also presented. Also in Chapter 5 we examine perceptions of job characteristics and opportunities--for example, perceived degree of variety and autonomy, and perceived significance of the job--by those within and outside the military. Many characteristics are inherent in the nature of military and civilian work. However, some redesign of jobs is likely possible if there is sufficient reason for doing so. Job characteristics in turn relate to job satisfaction and thus have implications for numbers and types of people retained.

In Chapter 6, we compare job satisfaction of the military and non-military groups. Black and white samples are analyzed separately, and limited disaggregation by service is also presented. Survey questions relating to overall job satisfaction and to factors contributing to satisfaction such as income, promotion opportunities and working conditions are examined. It seems obvious that job satisfaction bears on recruiting and retention, but the relationship is somewhat complicated. Differences in job satisfaction between civilian and military individuals may exist because of differences in the socioeconomic characteristics of civilian and military workers rather than to differences in the nature of

jobs. Satisfaction could in turn be enhanced, if that is desirable, by recruiting different people rather than by changing the nature of the jobs themselves. In fact, changing the nature of the jobs themselves may have little impact on job satisfaction. In Chapter 6, we explore these relationships.

Each chapter in this report constitutes a separate study and is written as a self-contained unit. Summaries, conclusions and discussions of policy implications are contained in each rather than being incorporated into a final concluding chapter. Appendices appropriate to a particular chapter immediately follow that chapter's text. Tables and footnotes are numbered separately in each chapter. There is, however, only one bibliography, to which citations in all chapters refer.

## CHAPTER 1

### SOCIOECONOMIC CHARACTERISTICS OF THE VOLUNTEER FORCE: A COMPARISON OF THOSE WHO SERVE AND THOSE WHO DON'T

The purpose of this chapter is to report on a comparison of the socioeconomic characteristics of 18-22 year old men on active duty in the Armed Forces with the characteristics of those in the same age/sex cohort who are not serving. The data used for the comparison are drawn from the National Longitudinal Survey (NLS) of Labor Force Behavior, Youth Survey, 1979.

There are at least three related sets of issues that can be addressed using information from such a comparison of characteristics. These concern representativeness, relative quality, and guidance in recruiting.

First is the "representativeness" issue which pervades much of the popular discussion of the AVF. That the military be a reasonably representative cross section of American society is believed by most to be an important national goal. Certain factors, particularly relating to the racial composition of the armed forces in comparison to the civilian population, are well known. However, other aspects of representativeness, which may also be regarded as important, are far less well known or remain for investigation. A comparison of those serving with those who are not serving speaks directly to this issue.

A second, related, issue concerns the quality of enlistees in comparison to those who choose not to join. Many have argued that the quality of recruits is inferior to the average of the target population.

In one sense, quality is merely another dimension of representativeness. However, there is more to the quality issue, in that, regardless of whether quality is representative or not, it is most important that the quality of military manpower be adequate to the missions of the armed forces. A comparison of those serving with those who are not serving provides information important to determining whether manpower of sufficient quality can be procured, as will be explained below.

A third issue follows from the first two. If those currently serving are not representative or are of inadequate quality, comparison of those serving and those who are not serving can provide some guidance in the design of recruiting strategy to change the composition of the force. To address this issue, it is useful to divide the group of those who have chosen not to serve into two parts--those who have expressed some interest in joining the military but have not subsequently joined, and those who have expressed no such interest. Identifying those interested in serving and comparing them with those who actually serve provides several insights of possible use in recruiting. First of all, it seems evident that the recruiting task is potentially easier if a large proportion of the non-serving population has at least some interest in serving. More important is an assessment of the desirability to the military of those who express interest. Desirability may relate either to representativeness or to quality. If those who express interest but do not serve would, were they to join, make the military more representative or of higher quality, it would be particularly desirable to seek ways to target recruiting efforts to them. If the interested group would not contribute to the representativeness or quality goals, the only reason for targeting them

would be that they might be easier to induce to join than would those who expressed no interest. Thus adequate numbers could be recruited with a smaller expenditure of resources. Perhaps the most operational insights that might be gained regard characteristics of the interested group that make it, or parts of it, an identifiable target population for recruiters. These characteristics might also provide information regarding possible recruiting incentives. For example, if those who express interest but do not join are people with relatively high educational aspirations, a program of generous post-service educational benefits might be a useful recruiting attraction. To take a different example, if a number of people in the interested group are children of military families, some recruiting efforts might be targeted specifically to this group. Answers to the questions regarding identification of target groups and identification of recruiting incentives are interesting primarily if the group expressing interest in military service is desirable to the military with respect to quality and/or representativeness.

The discussion below is divided into 13 sections. First, in Sections 1 through 4, the concepts of representativeness and relative quality are discussed and defined in greater detail, and the empirical methodology and variables used are described. Then, in Sections 5 through 12, results are shown and discussed. Both comparisons between those serving and those not serving, and three way comparisons among those serving, those who expressed interest in serving, and those who expressed no interest in serving, are presented. Sections 11 and 12 contain some results disaggregated by branch of service. Finally, Section 13 contains a summary and some concluding comments.



## 1. Representativeness and Quality

It is presumed desirable that the military services be a representative cross section of the national population. The meaning of representativeness is vague, however.<sup>1</sup> Two factors must be made precise to give meaning to the term: the defining variables, and the relevant comparison group. First, it must be decided which among the virtually unlimited statistical dimensions available are to be used in the definition. Fortunately, the number of politically relevant statistical dimensions is few, although exactly which statistics are relevant is to some extent debatable. Race is clearly the most important dimension. For this reason, and because it is already well known that blacks are overrepresented in the military, most of the analysis below is carried out separately for each racial/ethnic group. Other dimensions which we believe are relevant to the representativeness issue are geographic origin, education, and socioeconomic background. We examine variables relating to each of these. The variables used capture a number of the possibly important aspects of these dimensions. For geographic origin we use variables reflecting urban/rural residence at age 14, South/Non-south residence at age 14, and whether U.S. born. For education, we use years of school completed. For socioeconomic background, we use a group of variables representing parental occupation, parental education, number of siblings, whether the adult female in the house was in the labor market, and others. No one of the variables reflecting socioeconomic background, taken by itself, could be called a politically relevant dimension of representativeness. Taken

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1. See Eitelberg (8) for an enlightening discussion of the definition.

as a group, however, these variables are a reasonable reflection of socioeconomic background, which we argue is an important aspect of the representativeness issue.

The second factor that must be determined to give meaning to the concept of representativeness is the group with which the military is to be compared. The representativeness issue is one of fairness; and there is, of course, no single comparison group which all would agree is relevant to fairness. It might be appropriate to compare those serving with the entire population, the entire male population, the male population between 18 and 22, the male population not in school, etc. We take as parameters that it is fair that young people serve in the armed forces while older people, in the main, do not; and that most of those who serve are male. It seems to us, then, that the appropriate comparison group is all males 18-22 regardless of their labor force status or whether they are attending school.

The issue of quality, to the extent that it can be assessed using the variables available in this study, is obviously related to the representativeness issue, but differs in two senses. First, as we noted above in the introduction, the manpower goal for the military is not representative quality, however measured, but sufficiently high quality to accomplish necessary tasks. Sufficient quality measured, for example, in terms of years of education, may be obtained if those who join the service have, on average, as much education as those in the same population group who do not join--i.e., a representative group may provide sufficient quality. This need not be the case, however. The quality of

recruits with respect to education may be superior to that of their civilian counterparts, yet still be insufficient to handle the business of modern warfare; or the quality may be inferior, yet adequate to perform the job. The quality issue, then, to a large degree involves matching available manpower to the tasks to be accomplished, not comparing that manpower to those who are not serving.

It is obviously necessary to compare, as is done in this study, those in the military with those who have not joined in order to address the representativeness issue. It is not so obvious that this comparison is useful with respect to the quality issue because, as we have indicated, the important quality question concerns whether the recruits are adequate to the tasks at hand. The comparison in this study provides no basis for judging whether quality is adequate for the missions of the armed forces. However, the military vs. non-military comparison nevertheless provides policy relevant information for the quality issue. Let us assume for the moment that current quality is inadequate, which is the view conveyed in the press. If we find here that those joining the military are of above average quality relative to those who do not join, the quality problem is seen to be a particularly difficult one. The manpower pool from which to draw in order to achieve the desired improvement in quality is by definition small, because even the present above average group is inadequate. If on the other hand, we find that those who have joined are of below average quality, it may be difficult to draw into the service those who would bring the quality level up, but at least the pool of adequate people is relatively large. Any set of

incentives for attracting volunteers, or any system of conscription, is more likely to be successful in achieving adequate quality if the second situation prevails rather than the first. Thus, examining the relative quality of those in the service provides some insight into how difficult to solve is any quality problem that is perceived to exist.

The second sense in which the quality and representativeness issues differ lies in the choice of variables used to address the two issues. Some characteristics which are politically relevant in defining representativeness are irrelevant to assessing quality. Race, the most important dimension of representativeness, is one variable irrelevant to the quality issue. Others include variables reflecting geographic origin and most of the variables reflecting socioeconomic background. On the other hand, most variables useful in addressing quality are irrelevant to the representativeness issue. Among the variables in this category are: score on the Rotter test of internality/externality; health status; educational and vocational training aspirations; assessment of difficulties in getting a job in the civilian labor market, and others. To the extent that a variable is a relevant dimension of representativeness and also a quality measure, a potential conflict occurs between the goals of maintaining a representative force and also maintaining a force of sufficient quality. The important example of such a variable is years of education. Other variables that might be placed in this category include some of the socioeconomic background variables such as parental education and parental occupation. These variables relate less directly to the quality of individuals, but we argue that they are statistically related to quality.

## 2. Methodology

It is instructive to examine bivariate relationships between membership vs. non-membership in the Armed Forces on the one hand and selected socioeconomic characteristics on the other. Such analyses are discussed extensively below. However, a more complete picture of the differences between the two groups entails use of a multivariate technique. Discriminant analysis, which is appropriate for examining differences between two or more groups of cases with respect to several variables simultaneously, is the technique chosen.<sup>2</sup>

Discriminant analysis involves forming one or more linear combinations of a group of discriminating variables. The discriminant functions have the form:

$$D_i = d_{i1}Z_1 + d_{i2}Z_2 + \dots + d_{ip}Z_p$$

where  $D_i$  is the score on discriminant function  $i$ ,  $d_{ij}$  is the coefficient on variable  $j$  in discriminant function  $i$ , and  $Z_j$  is the standardized value of variable  $j$  (i.e. adjusted so that the mean value of  $Z$  is zero and the standard deviation is 1). The maximum number of discriminating functions is one less than the number of groups (or equal to the number of discriminating variables, if that number is smaller). Thus if comparison

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2. There is a debate in the statistical literature about the relative appropriateness of logit as compared with discriminant analysis for dealing with research situations of this kind. Discriminant analysis is more efficient when the assumptions of the discriminant model--multivariate normal distributions for the discriminating variables and equal group covariance matrices--are strictly met (see Efron (9)). When they are not met, some researchers prefer logit (Press and Wilson (20)). In any case, discriminant analysis appears to be a robust technique which can tolerate considerable deviation from the mathematical assumptions underlying the model (see Lauchenbruch (15)).

is made only between those in the military and those not in the military, only one function can be derived. If the discriminating variables in fact clearly distinguish the groups, most cases in a particular group will have similar D scores for a particular function, and the mean discriminant score for the group, called the group centroid, will be quite different from the mean score for any other group. The function is derived to maximize group differences. Assuming that more than two groups are being simultaneously compared, a second function can be derived. The second function is derived to maximize group differences under the condition that values on the second function are uncorrelated with the values on the first function. Subsequent functions are derived similarly. Each function may be tested for statistical significance. A lack of significance of a particular function suggests that any differences in centroids on that function can be attributed to sampling or measurement error--i.e. that the variables chosen cannot be shown to discriminate among the groups along that dimension.

The standardized coefficients ( $d_{ij}$ ), ignoring signs, can be interpreted as showing the relative importance of each variable in calculating the discriminant score on that function. Different variables are likely to make important contributions along different functions.

### 3. Comparison Group

There are several groups with which those serving might be compared. The appropriate group for comparison depends on which issue is to be addressed. If the representativeness issue is to be considered, we believe that the appropriate comparison group is the entire, male,

non-service population ages 18-22, as we have indicated in Section 1, above. If the quality question is to be considered, the appropriate group is not so clear. The purpose served by comparing quality is to provide insight into the problem of procuring adequate quality. Kim et al (12) compare those in the armed forces with their counterparts who have full time civilian jobs. They note that many of the "best" of the age cohort have gone on for further schooling, and their conclusion that the quality of those in the armed forces is at least equal to that of a comparable group in the civilian sector must be interpreted with careful notation of the comparison group used. The rationale for choosing full time employed as a comparison group is that it is these individuals for whom the military is competing. Those in school are not, it is assumed, in the effective potential labor pool. Those who work part time or not at all, on the other hand, may be of too poor quality to join the military. In this view, then, the difficulty in improving quality depends on how able are those recruited compared to those who chose the civilian labor market instead. This seems to us to be too pessimistic a view. Some of those who choose school can, with appropriate incentives, be induced to join the service. The potential labor market from which to draw in order to improve quality is in our view larger than the fully employed civilian group. We also believe that those working part time or not at all are too diverse a group to be omitted from the analysis as too poor in quality to join the military although that is clearly true of some in the group. Thus, we believe that the most appropriate comparison group for addressing the quality issue is the entire male population in the 18-22 age cohort, just as it is for the representativeness issue.

If the question to be addressed relates to determining whom the services lose among those who have expressed some interest in serving but who ultimately choose not to join, the appropriate comparison is among three groups--those serving, those who expressed interest in serving, and those who have not expressed such interest. Expression of interest in the military must, of course, be defined. We choose to define it using a survey question relating to whether the individual had talked to a military recruiter. Approximately 42 percent of the non-military sample expressed interest by this criterion. More restrictive definitions of expression of interest are obviously possible.<sup>3</sup>

Because the racial composition of the military presently is not representative of the society, and because Kim and others have found important differences in the characteristics of minority individuals in the military as compared to non-minority individuals, blacks and Hispanics are analyzed as separate groups.<sup>4</sup>

#### 4. Discriminating variables

Twenty-eight discriminating variables were tested. For several, alternative specifications were also tried. The variables are described fully in Appendix 1-A. They are divided into two categories: background

3. Several were tried. For example, the sample was also asked whether ASVAB and/or a military physical had ever been taken and passed. These items generated small samples. Questions were also asked regarding intentions to enlist and attitude toward service. These questions seemed appropriate indications of interest for those too young to serve, but retrospective information is more appropriate for examining the 18-22 year old group. Many of those who have not joined may have been interested at one time, but they have selected alternative opportunities.

4. The category "whites" used in the analysis is in fact a residual category referring to all non-black, non-Hispanic respondents in the survey.



characteristics and personal characteristics. The background variables describe family circumstances mostly when the respondent was 14. Included are: level of parental education, parental occupation, number of siblings, the availability of reading matter in the home, whether the respondent lived with his natural parents at age 14, whether the adult female in the house worked for pay, whether the respondent was born in the United States, and two geographic location variables--whether residence was in the South and whether residence was rural or urban. A number of these variables, taken together, provide some evidence of the socioeconomic class of the upbringing of the individual. The variables in this category of background variables are clearly exogenous with respect to the choice to join the military. Because many of the personal characteristics variables are not so clearly exogenous, and are therefore sometimes difficult to interpret, the background variables are examined separately as well as together with the personal characteristics.

The personal characteristics variables include several objective characteristics--age, years of education completed, marital status, type of high school curriculum, and whether health limits respondent's capacity to work. Other variables reflect knowledge, attitudes, opinions and expectations. These include: score on a test of knowledge of the world of work (KOWW); score on the Rotter scale, which measures "internality" or degree of control an individual believes he has over his life; educational aspirations; vocational training aspirations; commitment to work; and a variable reflecting whether certain problems--discrimination, lack of transportation, and others--had ever prevented respondent from getting

a job. Data on many of these personal characteristics may change as a result of a respondent's joining the service rather than reflecting the characteristics of the people who decide to join. In fact, in a successful military experience, one might hope for increased self-confidence and thus a lower Rotter score, and increased commitment to work. Even in the cases of the objective personal characteristics, some ambiguity exists. Marital status may change in part because effective military compensation is more generous for married individuals. Health limitations may arise as a result of military experience, rather than prior to it, or one's attitude toward a health problem may change as a result of military service even if the health condition itself does not change. Many of the personal characteristics may be age related. Years of education obviously falls in that category, and the score on the knowledge of the world of work test, the Rotter scale score, educational and vocational training aspirations, and commitment to work may also be age related. If those in the military are predominantly 20-22, while those not in the military are 18-19, differences on these other variables may be present as well, and those differences may be difficult to separate from the differences due to age.

Although we have cautioned that these personal characteristics may be somewhat difficult to interpret, not too much should be made of the problem. In the main, we believe that these variables identify characteristics of those who subsequently choose to join rather than reflecting the effects of the military experience on those who do join. Further, multivariate techniques reduce the problem of separating out effects

due to age. We only wish to remind the reader that interpretation of results of these variables should be somewhat cautious, given that the present study is by necessity cross sectional. Longitudinal data available in subsequent waves of the NLS panel will provide evidence as to whether the personal characteristics are in fact largely exogenous.

In addition to the separate analyses of the background and of the personal characteristics, selected combinations of the two categories were run in a third analysis. The combinations were chosen by a stepwise process designed to choose a subset of variables which maximizes the power of the discriminant function(s) derived to distinguish among the groups.<sup>5</sup>

As noted at the outset of the chapter, it is also useful to distinguish the variables relating to representativeness and those relating to quality. Those relating to representativeness, in our view, are race; the two geographic origin variables--whether residence at age 14 was South or non-South, rural or urban; whether the respondent was born in the U.S.; years of education; and the group of variables reflecting socioeconomic background--level of parental education; parental occupation, particularly whether blue collar or professional/managerial; number of siblings; whether respondent lived with his natural parents at age 14; whether the adult female in the home worked for pay; and the availability of reading material

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5. The selection criterion involves minimizing Wilks lambda. This procedure is equivalent to maximizing the overall multivariate F ratio for differences among groups. Variables are added as long as the partial F for the variable considered for inclusion is greater than or equal to 1.0. This criterion for inclusion amounts to testing whether the candidate for addition adds any statistically significant separation among the groups beyond the separation produced by variables entered previously.

in the home. A few variables are regarded here as relevant neither to representativeness nor to quality. These include age, marital status, and parental occupation variables other than blue collar or professional/managerial. Even for these a case could be made for inclusion in the quality or representativeness categories. One could argue, for example, that increased age makes for a more mature, effective worker. It could also be pointed out that there is evidence that married people are satisfied with their jobs (see Chapter 6) and are perhaps in turn more effective workers. Finally, a military force consisting of relatively large numbers of sons of, say farmers, or of military families could be a political issue.

#### 5. Results--Overall Comparison--Whites

Table 1-1 presents mean values for each of the discriminating variables for the white military and non-military groups, ages 18-22, together with the results of statistical tests for differences in those means. Table 1-2 reports results of three discriminant analyses--for background variables, for personal characteristics, and for the selected combination of the two. Coefficients on the table are standardized coefficients, as described above. The relative sizes of the coefficients indicate the relative contribution of the variables to the discriminant function.

Conventional wisdom is that whites in the military are unrepresentative in that they are disproportionately from lower socioeconomic backgrounds and that they are of inferior quality compared to their age group in the population as a whole. To some degree at least, the first part of this statement is borne out by the results. Examining the background variables

TABLE 1-1  
COMPARISON OF MEAN VALUES  
OF SELECTED BACKGROUND AND PERSONAL CHARACTERISTICS  
OF WHITE MALES 18-22 SERVING IN THE ARMED FORCES  
WITH CHARACTERISTICS OF THOSE NOT SERVING<sup>a,b,c</sup>

<u>Background Variables</u>	<u>Military</u>	<u>Non-Military</u>
EDPAR	12.73	13.01
FAM14	.71	.83***
OCCBLUE	.51	.44*
OCCFARM	.01	.03
OCCMILI	.07	.02***
OCCPROF	.21	.33***
OCCSALE	.11	.13
READING	3.27	3.21
SIBLINGS	3.45	2.99**
SOUTH14	.27	.24
URBAN14	.26	.22
USBORN	1.06	1.03
WORKMOM	.51	.45
Sample Size	122	1773
 <u>Personal Variables</u>		
AGE	20.06	19.62***
COMMIT	.88	.84
ED	11.64	12.01***
EDLIKE	3.36	2.89***
EDPROG	.24	.35***
HEALTH	.05	.04
KOWW	7.24	7.17
MARRY	.21	.10***
PROB	.71	.61**
ROTSKALE	8.17	7.99
VOCLIKE	.86	.65***
Sample Size	124	1738

<sup>a</sup> Means computed using weighted data.

<sup>b</sup> Background and personal variables are explained in Appendix 1-A.

<sup>c</sup> Two-tail t test: \*\*\*difference in mean value for those in the military  
as compared to those not in the military significant at .01.  
\*\*significant at .05.  
\*significant at .1.

TABLE 1-2  
DISCRIMINANT FUNCTIONS RELATING SELECTED BACKGROUND  
AND PERSONAL CHARACTERISTICS OF WHITE MALES 18-22  
TO MEMBERSHIP IN THE ARMED FORCES<sup>a,b,c</sup>

<u>Variable</u>	<u>Background Variables Only</u>	<u>Personal Variables Only</u>	<u>Selected Background and Personal Variables</u>
EDPAR	-.08		
FAM14	.52		.27
OCCBLUE	-.16		-.18
OCCFARM	.14		
OCCMILI	-.53		-.31
OCCPROF	.25		
OCCSALE	.13		
READING	-.24		-.13
SIBLINGS	-.34		-.13
SOUTH14	-.09		
URBAN14	-.23		-.11
USBORN	-.21		-.14
WORKMOM	-.21		-.11
AGE		-.55	-.46
COMMIT		-.12	.14
ED		.50	.45
EDLIKE		-.71	-.61
EDPROG		.35	.24
HEALTH		.02	
KOWW		-.11	-.12
MARRY		-.29	-.27
PROB		-.08	
ROTSKALE		-.06	
VOCLIKE		-.44	-.31
Centroid- military	-.59	-.86	-1.00
Centroid- non-military	.04	.06	.07
Canonical Correlation	.15	.23	.27
Wilks' Lambda	.98***	.95***	.93***

<sup>a</sup>Functions computed using weighted data.

<sup>b</sup>Background and personal variables explained in Appendix 1-A.

<sup>c</sup>Chi-square test - \*\*\*significant at .01.

in Table 1-1, one finds that those in the military are less likely to be children of professionals and managers, are more likely to be children of blue collar workers, are likely to have grown up in large families, and are more likely to have grown up in homes in which at least one of the adult heads-of-household was not one of the respondent's natural parents (this variable is called "family circumstances" below). The differences in means on other variables, while not significant by the tests used here, favor the same interpretation. For those in the military, mean parental education is lower, and the proportion coming from families in which the adult female worked for pay is greater.

While the character of the results produced by multivariate analysis as reported on Table 1-2 conforms to the results of the univariate analysis discussed above, it is notable that there is considerable overlap between the groups. The extent to which the background variables alone distinguish between the military and the non-military groups is small, as revealed by the small canonical correlation coefficient and the high lambda value.

The background variable which is found to be the most important discriminator is parental occupation in the military. A much larger proportion of those in the military are children of military parents than is true of those who are not in the military. This finding is not surprising in light of the research and literature on occupational choice, although it is not generally cited in discussions of the background characteristics of whites in the military, nor is it generally regarded as an important dimension of representativeness. See recent work by Faris for further discussion (10).

The personal characteristics variables distinguish more clearly between the two groups than do the background variables, although again the discriminant function reveals considerable overlap between the groups. The means and discriminant coefficients of several of the personal characteristics variables support the interpretation of the background variables given above that those in the military are from the lower strata of the labor pool. Compared to those not in the military, military members have significantly fewer years of education, they are less likely to have followed a college preparatory curriculum in high school, they are more likely to have had difficulty in getting good jobs. In other words, there appears to be support both for the notions of inferior quality and of relative low socioeconomic background. The result for one variable, educational aspirations, seems contrary to the conventional wisdom. The aspirations for more education on the part of those in the military are clearly stronger than the aspirations of those not in the military. This is, in fact, the variable which most strongly discriminates between the two groups, both when the personal characteristics are considered alone, and when the personal characteristics are combined with the background characteristics. These interesting results are examined in more detail in Chapter 4 of this report. Suffice to say here that those in the military appear as a group to be strongly interested in improving themselves, a desirable quality to employers of those in any occupation. Related to the finding for educational aspirations is the result for the variable reflecting desire for further vocational training. A far larger proportion of those in the military would like additional



vocational training (Table 1-1), and this variable too is among the most important discriminators (Table 1-2). The result for vocational training is more readily explained than that for education, however. The military widely advertises available training opportunities. The result here suggests that the advertising is successful in attracting large numbers of those who want additional training. Some reasons for high vocational aspirations are advanced in Chapter 3.

Two other variables, age and marital status, are important discriminators. Those in the military are clearly older and are clearly more likely to be married. The difference in age is partially explicable by the fact that 39 percent of the 18 year olds not in the service are still in high school, and thus in most cases have not reached the point at which they will decide between military service and other alternatives. (Thirty-four percent are seniors in high school; most of the rest are juniors.) This reasoning does not entirely explain the observed differences in age, however. A significant fraction of those serving have delayed entry into the service following high school. Among 20-22 year olds with high school diplomas in the white military sample, only 54 percent entered the service in the year they received their diploma. Twenty-five percent entered in the year following the receipt of diploma, and 12 percent entered two or more years afterwards. Nine percent received diplomas or equivalent after entry into the service. Some of those who delayed entry had a year or more of higher education; others had civilian work experience.

That those in the military are more likely to be married is in part merely a reflection of the fact that the military sample is older. However,

marital status is an important discriminating variable even after age is taken into account in a multivariate analysis. One likely explanation for the greater incidence of marriage among those in the military is that the military compensation structure in effect pays more to those who are married both in cash (BAQ; family separation) and in fringes (commissary, exchange, health and hospitalization, and others), than to those who do the same job who are single. Compensation for employment in the civilian labor market is almost never made with regard for marital status or numbers of dependents.

When personal characteristics and background characteristics are combined in a single analysis, the most important discriminators are, in order: educational aspirations, age, educational level, vocational training aspirations, parental occupation in the military, family circumstances, and marital status. Nine other variables make smaller contributions, and eight variables do not contribute enough to the power of the function to discriminate to be included at all. The directions of the contributions of the important variables are all described above for the separate background and personal characteristics analyses. Two additional observations will be made. First, while the discriminant function produced by the combination of the two classes of variables is highly significant, its substantive power to discriminate is nonetheless not great, as indicated by the small canonical correlation coefficient. Second, among the seven most important discriminators listed above, only two, educational level and family circumstances, related closely to the conventional wisdom that whites in the military tend to be drawn from the lower socioeconomic classes.

To summarize the results of this section, the conventional wisdom that whites in the military tend to come disproportionately from lower socioeconomic strata, and are of generally inferior quality as compared to their civilian counterparts is supported, but not strongly. The discriminant analysis shows that the socioeconomic variables distinguish those in the military from those who have not served, but that there is considerable overlap between the groups with respect to the discriminating variables. Several variables which do not relate closely to the conventional arguments are among the most important discriminators. Compared to those who haven't served, those in the military tend to be older, are more likely to be married, and are more likely to have grown up in military families. Finally, those in the military appear to have significantly higher educational and vocational aspirations than their civilian counterparts--qualities which we would argue are associated with relatively high quality labor.

#### 6. Results--Three Way Comparison--Whites

While the comparison in the previous section is appropriate to addressing issues of representativeness and quality, it is not the best comparison for investigating recruiting issues and problems. The effective recruiting pool is smaller than the totality of the 18-22 year old male population. In this section we use discriminant analysis, together with univariate tests of differences in means to make a three way comparison among those in the military, those who in the past expressed interest in serving in the military, and those who have expressed no interest in serving. Interest in serving is defined as having in the past talked to military recruiters.

Thus, we define the effective labor pool not by some objective characteristic such as level of education, but by a behavioral variable. Those who have talked to recruiters have been at least casually interested in military service, although they may have later decided to go to college or to join the civilian labor force instead of joining the armed forces. The comparison allows us first to assess the desirability to the military of those who expressed interest but did not join. Would their joining have improved the quality or representativeness of the force or not? Second, the comparison may provide some insight to guide recruiting of those individuals who decide not to join. The variables used in the comparison are the same as those described above. As before, a separate analysis is performed for background variables, for personal characteristics, and for a selected combination of the two.

Table 1-3 presents means for each of the three groups. Mean values for the military are, of course, identical to those on Table 1-1, but they are repeated here to facilitate comparison. Table 1-4 presents results for the three discriminant analyses. Because the analysis here involves distinguishing among three groups, two functions can be derived in each case. Both functions are highly significant in each case. The existence of a significant second function indicates that those who expressed interest in service and those who did not are distinguishable groups, and that these groups in turn are distinguishable from those in the military.

As was the case for the two group comparison discussed above, the background variables provide less discrimination than do the personal characteristics. The means for the background variables (Table 1-3)

TABLE 1-3  
COMPARISON OF MEAN VALUES OF SELECTED BACKGROUND  
AND PERSONAL CHARACTERISTICS OF WHITE MALES 18-22 IN THE MILITARY,  
WHITE MALES NOT IN THE MILITARY WHO EXPRESSED INTEREST IN SERVING  
AND OTHER WHITE MALES NOT IN THE MILITARY<sup>a, b, c</sup>

<u>Background Variables</u>	<u>Military</u>	<u>Non-Military Interested</u>	<u>Non-Military Not Interested</u>	<u>Significance of F test</u>
EDPAR	12.73	12.93	13.06	
FAM14	.71	.83	.83	**
OCCBLUE	.51	.48	.40	***
OCCFARM	.01	.02	.03	
OCCMILI	.07	.02	.02	***
OCCPROF	.21	.28	.36	***
OCCSALE	.11	.15	.11	
READING	3.27	3.28	3.16	
SIBLINGS	3.45	3.10	2.91	**
SOUTH14	.27	.23	.24	
URBAN14	.26	.23	.22	
USBORN	1.06	1.02	1.04	
WORKMOM	.51	.43	.47	
Sample Size	122	735	1038	
<u>Personal Variables</u>				
AGE	20.06	19.57	19.66	***
COMMIT	.88	.85	.83	
ED	11.64	11.86	12.12	***
EDLIKE	3.36	2.72	3.01	***
EDPROG	.24	.29	.39	***
HEALTH	.05	.05	.04	
KCWW	7.24	7.09	7.22	
MARRY	.21	.09	.11	***
PROB	.71	.67	.56	***
ROTSKALE	8.17	7.96	8.01	
VOCLIKE	.86	.75	.58	***
Sample Size	124	723	1015	

<sup>a</sup> Means computed using weighted data.

<sup>b</sup> Background and personal characteristics explained in Appendix 1-A.

<sup>c</sup> F test for the difference among means - \*\*\*significant at .01.  
\*\*significant at .05.

TABLE 1-4  
DISCRIMINANT FUNCTIONS RELATING SELECTED BACKGROUND AND PERSONAL CHARACTERISTICS  
OF WHITE MALES 18-22 TO MEMBERSHIP IN THE MILITARY,  
INTEREST IN MILITARY SERVICE AND LACK OF INTEREST IN MILITARY SERVICE<sup>a,b,c</sup>

Variable	Background Variables Only		Personal Variables Only		Selected Background and Personal Variables	
	Function #1	Function #2	Function #1	Function #2	Function #1	Function #2
EDPAR	-.09	-.02			.16	.10
FAM14	.30	.48			-.10	.29
OCCBLUE	-.41	.28			.35	.12
OCCPARM	.21	-.06				
OCCMILI	-.34	-.43			.18	-.27
OCCPROF	.37	-.07				
OCCSALE	-.19	.47			.26	.28
READING	-.44	.20			.27	.09
SIBLINGS	-.39	-.05			.14	-.02
SOUTH14	-.09	-.04			.13	-.03
URBAN14	-.23	-.07			-.01	-.21
USBORN	-.02	-.34			-.09	-.27
WORKMOM	.07	-.45			.27	-.41
AGE			-.31	.52	.18	-.00
COMMIT			-.15	-.00	.23	-.68
ED			-.39	-.32	-.30	.01
EDLIKE			-.30	.80	-.39	.21
EDPROG			.37	-.08	.23	-.68
HEALTH			-.00	-.05	-.30	.01
KOMM			-.07	.09		
MARRY			-.03	.46	.03	-.38
PROB			-.32	-.31	.30	.28
ROTSKALE			.11	.26	-.11	-.18
VOCLIKE			-.65	-.17	.50	.11
Centroid-Military	-.48	-.35	-.70	.50	.75	-.65
Centroid-Interested	-.10	.14	-.18	-.20	.23	.24
Centroid-Not Interested	.13	-.06	.21	.08	-.25	-.09
Canonical Correlation	.17	.13	.27	.19	.31	.23
Wilks' Lambda	.95***	.98***	.90***	.96***	.86***	.95***

<sup>a</sup>Functions computed using weighted data.

<sup>b</sup>Background and personal variables explained in Appendix 1-A.

<sup>c</sup>Chi-square test - \*\*\*significant at .01.

suggest that the military members come from a somewhat lower socioeconomic group than those in either of the other groups--they are less likely to be children of professionals and managers, more likely to be children of blue collar workers, more likely to have come from relatively large families, and more likely to have grown up in households without at least one of their natural parents. They are also, as noted before, more likely to be children of military parents. The group which expressed interest, but did not join, tends to occupy an intermediate position between the military group and the group which expresses no interest--more professional-managerial families than are represented in the military groups, but fewer than in the non-interested group; less blue collar than the military group but more than the non-interested group; fewer siblings than the military group, but more than the non-military group. In short, successful recruiting from the interested group would have improved the representativeness of the force by upgrading mean socioeconomic background. On the other hand, the family circumstances variable and the parental occupation in the military variable show no differences between the interested and the non-interested groups; the two groups together are distinguished from the military group.

The focus of the first of the two discriminant functions is on the separation of the military group from the group which expressed no interest in serving, with the interested group occupying an intermediate position. The important variables are mostly those mentioned above in the univariate comparison--parental occupation as professionals/managers, as blue collar workers, or as members of the military; family circumstances; number of siblings. Signs are as expected. The most important variable

in the discriminant function is one reflecting reading material in the home when the respondent was 14. This variable, insignificant for distinguishing groups by the univariate tests in Table 1-3, suggests that more reading material was present on average in the homes of those who later joined the service. This result tends to contradict the conventional wisdom that military members are from lower socioeconomic backgrounds and reinforces the point that there is considerable overlap among the groups with respect to background.

The focus of the second background discriminant function is on the separation between the military group and the interested group. Along this dimension, the group expressing no interest in serving occupies the intermediate position. It should be recalled that the second function is derived to maximize group differences under the condition that the values on the second function are uncorrelated with the values on the first function. Basically, the second function separates the groups as much as possible, given the first function. The first function is the more important, indicating here that the separation achieved using the background variables is greater between the military and the non-interested groups than between the military and the interested groups. Two variables, parental occupation in the military, and family circumstances, are again among those with the largest standardized coefficients. Parental occupation as blue collar worker also remains an important variable, but the sign is now reversed. Those interested are more likely to be children of blue collar workers, other things equal.<sup>6</sup> The reading material variable

6. This is true in a univariate context compared to non-interested individuals, but not compared to those in the military.



is reduced in importance, and the direction of its contribution relative to the military groups also changes. Other variables important in the first function are unimportant in the second--number of siblings, and parental occupation as professional/manager. Three other variables, unimportant on the first dimension, are important here: parental occupation in sales or clerical jobs, whether the adult female in the household when respondent was 14 worked for pay, and whether the respondent was born in the United States. Those in the military are less likely to come from families in which parents are in sales/clerical jobs, more likely to come from homes in which the adult female worked, and more likely to be foreign born. Confirmation of these three results in a univariate context is provided on Table 1-3 by comparing the means for the military group with the means for the interested group.

Tables 1-3 and 1-4 reveal that the personal characteristics examined distinguish more clearly among the three groups than do the background variables. The means of seven variables among the eleven tested reveal significant differences among the groups. We noted above that relative to civilians, those in the military are older, less well educated, more likely to have had problems in getting jobs, more likely to be married, and more likely to aspire to additional education and vocational training. For the most part, the group which expressed interest but did not join occupies, with respect to these variables, an intermediate position between those serving and those who were never interested--they have more education than those in the military, but less than the non-interested group; fewer wish additional vocational training than is true of those in the military, but more than those in the not interested group, etc. It

appears that successful recruiting from the interested group might have improved quality and representativeness. However, with respect to educational aspirations, those in the military rank highest among the three groups, and those who expressed interest but did not join ranked lowest among the groups. With respect to age and marital status, the military group ranks highest (oldest and most married) and the interested group, if anything, ranks lowest.

The first discriminant function for the personal variables separates the military from the not interested group, with the group which expressed interest in serving occupying the intermediate position. The key discriminator is the variable representing aspiration for future vocational training. Individuals with these aspirations are more likely to be in the service. Other important discriminators are years of education, type of high school program and the variable reflecting problems in getting a good job. All have the expected signs. The second discriminant function is concentrated on separation between the military group and the interested group, with the non-interested group occupying the intermediate position. This function is dominated by the educational aspirations variable, with the age and marital status variables also playing important roles.

The combination functions bring together selected background and personal characteristics. As was true when the background and personal characteristics were examined separately, the first function maximizes separation between the military and the non-interested group, while the second, of less statistical importance, distinguishes between the military and the interested group, with the not interested group occupying the

intermediate position. Thus, for the variables used here, we can conclude, not surprisingly, that differences are greater between the military and the not interested group than between the military and those who expressed some interest in serving. Personal characteristics, not background variables dominate both functions. The most important discriminator in the first function is the vocational training aspirations variable. The most important discriminator in the second function is the educational aspirations variable.

We can draw several conclusions regarding the lengthy discussion above. We have noted in Section 5 above that on the variables tested, whites in the military tend to be drawn from somewhat lower socioeconomic classes. Here we find, first, that those who have expressed some interest in serving as defined by having talked to recruiters appear to be of somewhat lower status than those who expressed no such interest, but of higher status than those who actually joined. Successful recruiting from the interested group would have made those in the military more representative with respect to socioeconomic class. The most important variables in discriminating among the groups are not those that are generally used to distinguish socioeconomic class, however. The multivariate analysis suggests that background variables are less important in distinguishing among the groups than are personal characteristics. This is a second noteworthy point. Third, the personal characteristics and the background variables which may be regarded as quality indicators do not clearly suggest that those who joined are of lower quality than those who were interested but did not join. Those in the military are distinguished by less education, a greater likelihood of having taken a

non-academic high school program, and more problems getting jobs in the civilian labor market, but the variable which most clearly distinguishes the military group from the not interested group is the desire for more vocational training. More important, the variable which most clearly distinguishes the military group from the interested group is the desire for additional education. In short, variables reflecting a desire for self improvement distinguish those in the military from those not in the military, and particularly those in the military from those not in the military who considered at some time joining the service. Finally, the effectiveness of one of the most talked about changes in recruiting attractions, liberalized educational benefits, is called into some question by the results here. Those who join the service now have the highest educational aspirations of the three groups. Those who considered joining, but did not, record the lowest aspirations and thus it can be argued that they were not discouraged by the lack of educational opportunities to satisfy their aspirations.

#### 7. Results--Overall Comparison--Blacks

Table 1-5 presents mean values for each of the discriminating variables for black males in the military as compared to those not in the service, together with results of statistical tests of differences in those means. It is comparable to Table 1-1 for whites. Table 1-6, which is comparable to Table 1-2 for whites, shows standardized coefficients resulting from three discriminant analyses used to distinguish between blacks in the military and non-military blacks.

The conventional wisdom regarding blacks in the armed forces is that they come from better backgrounds and are of higher quality than their

TABLE 1-5  
COMPARISON OF MEAN VALUES  
OF SELECTED BACKGROUND AND PERSONAL CHARACTERISTICS  
OF BLACK MALES 18-22 SERVING IN THE ARMED FORCES  
WITH CHARACTERISTICS OF THOSE NOT SERVING<sup>a,b,c</sup>

<u>Background Variables</u>	<u>Military</u>	<u>Non-Military</u>
EDPAR	12.00	11.37**
FAM14	.54	.59
OCCBLUE	.66	.62
OCCFARM	.01	.01
OCCMILI	.07	.03**
OCCPROF	.08	.09
OCCSALE	.06	.07
READING	3.06	2.46***
SIBLINGS	4.68	4.58
SOUTH14	.57	.54
URBAN14	.15	.17
USBORN	1.02	1.03
WORKMOM	.67	.61
Sample Size	82	621
<u>Personal Variables</u>		
AGE	20.19	19.51***
COMMIT	.87	.82
ED	11.90	11.34***
EDLIKE	3.70	3.07***
EDPROG	.32	.27
HEALTH	.04	.05
KOWW	6.19	5.27***
MARRY	.16	.03***
PROB	.78	.79
ROTSKALE	8.60	8.53
VOCLIKE	.93	.80***
Sample Size	86	650

<sup>a</sup> Means computed using weighted data.

<sup>b</sup> Background and personal variables are explained in Appendix 1-A.

<sup>c</sup> Two-tail t test - \*\*\*difference in mean value for those in the military as compared to those not in the military significant at .01.  
\*\*significant at .05.

TABLE 1-6  
DISCRIMINANT FUNCTIONS RELATING SELECTED BACKGROUND  
AND PERSONAL CHARACTERISTICS OF BLACK MALES 18-22  
TO MEMBERSHIP IN THE ARMED FORCES<sup>a,b,c</sup>

<u>Variable</u>	<u>Background Variable Only</u>	<u>Personal Variables Only</u>	<u>Selected Background and Personal Variables</u>
EDPAR	-.29		
FAM14	.33		.12
OCCBLUE	-.21		
OCCFARM	-.03		
OCCMILI	-.42		
OCCPROF	.10		.17
OCCSALE	.03		
READING	-.75		-.40
SIBLINGS	-.24		-.12
SOUTH14	-.24		-.21
URBAN14	-.06		
USBORN	.19		
WORKMOM	-.15		
AGE		.33	-.37
COMMIT		.12	
ED		.13	
EDLIKE		.33	-.31
EDPROG		-.07	
HEALTH		-.05	
KOWW		.31	-.20
MARRY		.54	-.49
PROB		-.04	
ROTSKALE		.09	
VOC LIKE		.34	-.28
Centroid- Military	-.53	.83	-.88
Centroid- Non-military	.07	-.11	.12
Canonical Correction	.19	.30	.33
Wilks' Lambda	.96**	.91***	.89***

<sup>a</sup>Functions computed using weighted data.

<sup>b</sup>Background and personal variables explained in Appendix 1-A.

<sup>c</sup>Chi-square test - \*\*\*significant at .01.  
\*\*significant at .05.

civilian black counterparts.<sup>7</sup> The results tend to bear out this view. Among background variables, two which support the point have significantly different means. Those in the military are from families in which parents have attained more education and homes in which reading material was more readily available. A third variable, parental occupation in the military, is also significant. More present military members are children of military families. These three variables, together with the family circumstances variable, are the four most important discriminators in the discriminant function run with the background variables. The reading material variable, with the expected sign--i.e. those in the military come from homes where reading material was more readily available--is the dominant variable. The family circumstances variable, which is not significant in the univariate analysis, has a sign opposite from that which might be expected. People in the military are less likely to have come from homes in which both natural parents reside. This might be interpreted as reflecting lower socioeconomic status.

Univariate comparison of the personal characteristics variables reveals more significant differences than is true among the background variables, and the discriminant function run on those variables separates those in the military more clearly from those not in the military than does the background function. The blacks in the military appear to be superior to their civilian counterparts. Table 1-5 shows that they have significantly more education, scored higher on the KOWN test, and have higher educational and vocational training aspirations. They also

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7. Kim et al (12) using the same data set support this conventional wisdom for minority individuals relative to civilians who are in the labor force full time.

are older and are much more likely to be married than are the civilians. These six variables, with the exception of level of education, are the important discriminators in the discriminant function test of personal characteristics reported on Table 1-6.

When the background and personal variables are combined in one discriminant function, we find that marital status, availability of reading material, age, educational aspirations, and vocational training aspirations, in that order, are the important discriminators. Five additional variables contribute enough to the power of the function to discriminate to be selected; the other 14 variables do not.

Blacks are overrepresented in the military. However, the results here show that the blacks who serve are representative of the black population in the age group. To the extent that they are not representative, those who serve are from higher socioeconomic backgrounds than are their civilian counterparts. We also find that the blacks who serve are quite clearly of relatively high quality, as measured by the variables here.

#### 8. Results--Three Way Comparison--Blacks

Tables 1-7 and 1-8 present results of the comparison among (1) those blacks serving in the armed forces, (2) those who have expressed interest in serving, and (3) those who have expressed no interest in serving. These tables are comparable to Tables 1-3 and 1-4 for whites.

The mean values on Table 1-7 show the blacks in the service to be of higher quality than either of the other groups. In general, means for the interested group lie between means for the military and non-interested



TABLE 1-7  
COMPARISON OF MEAN VALUES OF SELECTED BACKGROUND  
AND PERSONAL CHARACTERISTICS OF BLACK MALES 18-22 IN THE MILITARY,  
BLACK MALES NOT IN THE MILITARY WHO EXPRESSED INTEREST IN SERVING  
AND OTHER BLACK MALES NOT IN THE MILITARY<sup>a,b,c</sup>

<u>Background Variables</u>	<u>Military</u>	<u>Non-Military Interested</u>	<u>Non-Military Not Interested</u>	<u>Significance of F Test</u>
EDPAR	12.00	11.60	11.13	**
FAM14	.54	.61	.56	
OCCBLUE	.66	.65	.58	
OCCFARM	.01	.00	.01	
OCCMILI	.07	.03	.03	
OCCPROF	.08	.10	.08	
OCCSALE	.06	.07	.07	
READING	3.06	2.61	2.30	***
SIBLINGS	4.68	4.59	4.57	
SOUTH14	.57	.56	.52	
URBAN14	.15	.12	.22	**
USBORN	1.02	1.03	1.04	
WORKMOM	.67	.65	.57	
Sample Size	82	319	302	
<u>Personal Variables</u>				
AGE	20.19	19.48	19.55	***
COMMIT	.87	.82	.82	
ED	11.90	11.42	11.25	**
EDLIKE	3.70	3.16	2.98	***
EDPROC	.32	.26	.28	
HEALTH	.04	.05	.06	
KOWW	6.19	5.30	5.24	***
MARRY	.16	.02	.05	***
PROB	.78	.84	.73	**
ROTSKALE	8.60	8.56	8.50	
VOCLIKE	.93	.84	.76	***
Sample Size	86	346	304	

<sup>a</sup> Means computed using weighted data.

<sup>b</sup> Background and personal variables are explained in Appendix 1-A.

<sup>c</sup> F test for the difference among means - \*\*\*significant at .01.  
\*\*significant at .05.

TABLE 1-8  
DISCRIMINANT FUNCTIONS RELATING SELECTED BACKGROUND AND PERSONAL CHARACTERISTICS  
OF BLACK MALES 18-22 TO MEMBERSHIP IN THE MILITARY,  
INTEREST IN MILITARY SERVICE AND LACK OF INTEREST IN MILITARY SERVICE<sup>a,b,c,d</sup>

Variable	Background Variables Only		Personal Variables Only		Selected Background and Personal Variables	
	Function #1	Function #2	Function #1	Function #2	Function #1	Function #2
EDPAR	-.30				-.15	.20
FAM14	.09				.06	.53
OCCBLUE	-.25					
OCCFARM	.11					
OCCMILI	-.26					
OCCPROF	.01				-.45	.07
OCCSALE	-.03					
READING	-.62				-.27	.22
SIBLINGS	-.22				.06	.44
SOUTH14	-.34				.21	-.19
URBAN14	.28					
USBORN	.23					
WORKMOH	-.22				-.33	-.32
AGE			-.31	.28		
COMMIT			-.13	-.03		
ED			-.16	-.36		
EDLIKE			-.34	-.15	-.36	.03
EDPROG			.08	.16	.11	-.21
HEALTH			.07	.18		
KONN			-.30	.04		
MARRY			-.51	.39	-.39	-.42
PROB			-.01	-.60	-.01	.41
ROTSKALE			-.10	-.09		
VOCLIKE			-.38	-.47	-.40	.21
Centroid- Military	-.46		-.82	.06	-.83	-.26
Centroid- Interested	-.13		.07	-.19	-.02	.27
Centroid- Not Interested	.26		.15	.20	.26	-.22
Canonical Correlation	.25					
Wilks' lambda	.92***		.30	.19	.33	.25
			.88***	.97***	.51***	.94***

<sup>a</sup>Functions computed using weighted data.

<sup>b</sup>Background and personal variables explained in Appendix 1-A.

<sup>c</sup>Chi-square test - \*\*\*significant at .01.

<sup>d</sup>Background variables function #2 not significant at .1.

group. Among the quality variables with significantly different means, we find that the interested group averages less education than the military group but more than the non-interested group; averages lower educational aspirations than the military group but higher than the not interested group; includes relatively more individuals from homes where reading material was readily available than was the case for individuals in the non-interested group, but less readily available than was the case for those in the military group, etc. For several variables significant in the univariate analysis, the interested group is not the intermediate group. One of these, the dummy variable reflecting problems in getting civilian jobs, we regard as a quality indicator; the others are not. Those in the interested group are less likely to be married than those in either of the other groups, they are slightly younger than those in the not interested group and much younger than those in the military, and, most interesting, they are more likely to be from urban areas than are those in either of the other groups.

In the three discriminant analyses (Table 1-8), the first function in each case separates the military group from the non-interested group, with the interested group occupying an intermediate position on the vector. For both the personal variables function and for the combination function, the interested group appears more similar to the non-interested group than to the military group. This is made manifest by the small separation in the centroids of the two non-military groups relative to the separation of the military group from either. As noted above, the military group appears superior in quality to either of the others. The reading material variable dominates the background function. The marital status variable is

the most important variable in the personal characteristics function, but quality indicators--educational and vocational aspirations, and the KOWW score are also important discriminators. In the combination function, the reading material variable and the educational and vocational aspirations variables are, together with marital status, the most important four variables. The first three suggest higher quality individuals in the service.

The results for the second function in the three way discriminant analysis differ sharply from those for whites. First, for the background variables analysis, the second function is not significant in distinguishing among the three groups. Second, for the personal characteristics analysis, the second function is focussed on separating the interested group from the not interested group, with the military group in the intermediate position. Third, for both the personal characteristics function and the combination function, the centroid of the military group lies closer to that for the non-interested group than to the centroid for the interested group. Regarding particular variables, it was reported above that those who expressed interest in joining the military were most likely to report having had trouble finding good jobs in the civilian labor market. This variable is the most important discriminator in the second personal characteristics function. Level of education, desire for further vocational training, and marital status also distinguish the interested from the non-interested groups along this dimension. The three key discriminators in the second function of the combination analysis are marital status and difficulty in getting a good job, plus the variable representing urban as opposed to rural background.

We will complete this section by highlighting several results. First, with respect to socioeconomic background, the variables examined are not particularly useful in discriminating among the three groups. As noted in Section 7 above, those blacks in the military are reasonably representative of the black population in the age-sex cohort. Here we find in turn that those blacks not in the military who expressed interest are not from very different socioeconomic backgrounds from those who actually joined or from those who expressed no interest. Second, geographical variables appear to contribute to separation of the three groups for blacks. Recruiting appears to be relatively successful in urban areas. Further, those in the interested group are particularly likely to be from urban areas. Recruitment of those who had expressed interest would have resulted in black servicemen being disproportionately from urban areas. Also, other things equal, those in the military and those interested appear relatively likely to be from the South. Further, other things equal, those in the interested group appear relatively likely to be from the South as compared to those in the service. Third, blacks in the service appear to be of higher quality than those who expressed some interest in serving but did not join. Thus, successful recruiting of some of those in the interested group, instead of, or in addition to those who actually joined, would have reduced relative quality. However, the interested group in turn appears to be of somewhat higher quality than the group containing those who expressed no interest in service. The educational aspirations variable is worth noting because the result differs from that for whites. As is true for whites, those blacks in the military are distinguished by higher

educational aspirations than either of the non-military groups. However, among blacks, the education aspirations variable also serves to distinguish the interested group from the non-interested group. This is not true among whites. Among whites, the interested group has the lowest mean level of aspirations. Finally, the two non-military groups appear more similar to one another than either are to the military group. The variables most clearly distinguishing the military group from the other two are marital status, age, and three quality variables: reading material, educational and vocational aspirations.

#### 9. Results--Overall Comparison--Hispanic

Tables 1-9 and 1-10 report on the repetition for Hispanics of the comparison between those in the military and those not in the service presented for whites (Tables 1-1 and 1-2) and blacks (Tables 1-5 and 1-6) above. As is true above, means of the discriminating variables are compared on the first table (Table 1-9) and three discriminant analyses are presented on the second table. Background and personal characteristics are examined separately, then combined in one discriminant function.

From Tables 1-9 and 1-10, it can be seen that the background characteristic most clearly distinguishing the Hispanics in the armed forces from those not in the armed forces is that significantly more in the civilian group are foreign born. Reviewing the other background variables, no clear pattern emerges. Those in the military group can perhaps be said to come from better socioeconomic backgrounds, as suggested by significantly higher mean values for parental education and for the availability of reading material at home, and lower mean number of siblings, but the signs

TABLE 1-9  
COMPARISON OF MEAN VALUES  
OF SELECTED BACKGROUND AND PERSONAL CHARACTERISTICS  
OF HISPANIC MALES 18-22 SERVING IN THE ARMED FORCES  
WITH CHARACTERISTICS OF THOSE NOT SERVING<sup>a,b,c</sup>

<u>Background Variables</u>	<u>Military</u>	<u>Non-Military</u>
EDPAR	10.33	8.87**
FAM14	.64	.70
OCCBLUE	.59	.57
OCCFARM	0	.04
OCCMILI	.04	.01
OCCPROF	.10	.13
OCCSALE	.11	.06
READING	3.00	2.28***
SIBLINGS	3.84	4.90**
SOUTH14	.25	.25
URBAN14	.08	.16
USBORN	1.12	1.35***
WORKMOM	.39	.44
Sample Size	33	418
<u>Personal Variables</u>		
AGE	19.92	19.50**
COMMIT	.88	.84
ED	11.50	10.91
EDLIKE	3.65	2.85***
EDPROG	.16	.24
HEALTH	.04	.05
KOWN	5.86	5.67
MARRY	.17	.14
PROB	.88	.71**
ROTSKALE	8.73	8.67
VOCLIKE	.88	.76*
Sample Size	38	404

<sup>a</sup>Means computed using weighted data.

<sup>b</sup>Background and personal variables are explained in Appendix 1-A.

<sup>c</sup>Two-tail t test: \*\*\*difference in mean value for those in the military  
as compared to those not in the military significant at .01.  
\*\*significant at .05.  
\*significant at .1.

TABLE 1-10  
DISCRIMINANT FUNCTIONS RELATING SELECTED BACKGROUND  
AND PERSONAL CHARACTERISTICS OF HISPANIC MALES 18-22  
TO MEMBERSHIP IN THE ARMED FORCES<sup>a,b,c</sup>

<u>Variable</u>	<u>Background Variables Only</u>	<u>Personal Variables Only</u>	<u>Selected Background and Personal Variables</u>
EDPAR	.04		
FAM14	-.24		
OCCBLUE	.28		
OCCFARM	.08		
OCCMILI	.35		.16
OCCPROF	-.06		
OCCSALE	.28		.17
READING	.46		.29
SIBLINGS	-.26		-.20
SOUTH14	-.07		
URBAN14	-.15		
USBORN	-.49		-.42
WORKMOM	-.39		-.22
AGE		-.38	.32
COMMIT		.14	.18
ED		-.26	
EDLIKE		-.73	.56
EDPROG		.51	-.40
HEALTH		.16	-.20
KOWW		.02	
MARRY		-.08	
PROB		-.35	.32
ROTSKALE		-.13	.16
VOC LIKE		-.31	.21
Centroid- military	.76	-.82	1.09
Centroid- non-military	-.06	.07	-.09
Canonical Correlation	.21	.25	.32
Wilks' lambda	.95*	.94***	.90***

<sup>a</sup>Functions computed using weighted data.

<sup>b</sup>Background and personal variables explained in Appendix 1-A.

<sup>c</sup>Chi-square test: \*\*\*significant at .01.  
\*significant at .1.



on the coefficients of the family circumstances variable, and the parental blue collar occupation variable in the discriminant function suggest that those in the military group are from a lower socioeconomic background than are the civilians. It is also worth noting that the discriminant function itself is not highly significant, indicating that the ability of the background variables to distinguish between the two groups is limited.

Among the personal characteristics, the variable most clearly distinguishing the two groups is, as it is for the whites, educational aspirations. Compared to those not in the military, those in the military want significantly more education than they now have. Those in the military are also distinguished by a greater desire for further vocational training; a somewhat higher level of education in the military group also serves to discriminate. These variables together appear to indicate higher quality among the Hispanics in the armed forces, but two other important variables suggest the reverse. The second variable in importance in the discriminant function shows that those in the military are less likely to have followed a college preparatory program in high school; the fourth variable in importance shows that those in the military perceive having had more problems in getting good jobs in the civilian labor market. Those in the military are also likely to be somewhat older, but not, in contrast to results for blacks and for whites, much more likely to be married, than their non-military counterparts.

In the function constructed combining background and personal characteristics, the most important discriminators are, in order, educational aspirations, whether foreign born, and type of high school program.

In sum, the most interesting result here is the relative underrepresentation of foreign born Hispanics in the armed forces. Otherwise, Hispanics in the military appear reasonably representative of the total Hispanic population in the age-sex cohort. Also, it can be argued that the quality of Hispanics in the military is somewhat higher than the average of their non-military counterparts. The most prominent variable in support of this statement is educational aspirations. As is true for both whites and for blacks, those Hispanics in the military have much higher educational aspirations than those who are not in the service.

#### 10. Results--Three Way Comparison--Hispanics

The three way comparison among those Hispanics serving, those who have expressed interest in serving, and those who have expressed no such interest is presented in Tables 1-11 and 1-12. The mean values for the quality indicators shown on Tables 1-11 generally suggest that those who expressed interest in serving fall between the other two groups and that the interested group is more like the group currently in the military than like the group that had never expressed interest. Educational aspirations of those in the military are greatest, and those of the interested group are greater than those of the not interested group; those in the military are from more educated families than either of the other groups, and the parents of those in the interested group are more educated than parents of those in the not interested group; those in the military report more job problems in the civilian labor market than those in the interested group, who in turn report more such problems than those in the not interested group. For two quality indicators, the means for the interested

**TABLE 1-11**  
**COMPARISON OF MEAN VALUES OF SELECTED BACKGROUND AND PERSONAL CHARACTERISTICS**  
**OF HISPANIC MALES 18-22 IN THE MILITARY,**  
**HISPANIC MALES NOT IN THE MILITARY WHO EXPRESSED INTEREST IN SERVING**  
**AND OTHER HISPANIC MALES NOT IN THE MILITARY<sup>a,b,c</sup>**

<u>Background Variables</u>	<u>Military</u>	<u>Non-Military Interested</u>	<u>Non-Military Not Interested</u>	<u>Significance of F Test</u>
EDPAR	10.33	10.06	8.31	***
FAM14	.64	.72	.69	
OCCBLUE	.59	.66	.52	*
OCCFARM	0	.01	.06	*
OCCMILI	.04	.02	.01	
OCCPROF	.10	.09	.15	
OCCSALE	.11	.08	.05	
READING	3.00	2.64	2.11	***
SIBLINGS	3.84	4.18	5.23	***
SOUTH14	.25	.27	.24	
URBAN14	.08	.10	.19	*
USBORN	1.12	1.26	1.40	***
WORKMOM	.39	.54	.39	**
Sample Size	33	133	285	
<u>Personal Variables</u>				
AGE	19.92	19.45	19.53	
COMMIT	.88	.85	.84	
ED	11.50	11.56	10.61	***
EDLIKE	3.65	3.05	2.76	**
EDPROG	.16	.31	.21	*
HEALTH	.04	.05	.05	
KOWW	5.86	5.98	5.53	
MARRY	.17	.11	.15	
PROB	.88	.80	.67	**
ROTSKALE	8.73	8.64	8.69	
VOCLIKE	.88	.80	.74	
Sample Size	38	128	276	

<sup>a</sup>Means computed using weighted data.

<sup>b</sup>Background and personal variables explained in Appendix 1-A.

<sup>c</sup>F test for the difference among means: \*\*\*significant at .01.  
 \*\*significant at .05.  
 \*significant at .1.

TABLE 1-12  
DISCRIMINANT FUNCTIONS RELATING SELECTED BACKGROUND AND PERSONAL CHARACTERISTICS  
OF HISPANIC MALES 18-22 TO MEMBERSHIP IN THE MILITARY,  
INTEREST IN MILITARY SERVICE AND LACK OF INTEREST IN MILITARY SERVICES<sup>a,b,c,d</sup>

Variable	Background Variables Only		Personal Variables Only		Selected Background and Personal Variables	
	Function #1		Function #1	Function #2	Function #1	Function #2
EDPAR	.32				-.36	.16
FAM14	.01					
OCCBLUE	.17				-.18	.23
OCCFARM	-.07					
OCCMILI	.20				.33	-.12
OCCPROF	-.41				-.27	-.11
OCCSALE	.10					
READING	.33					
SIBLINGS	-.20					
SOUTH14	-.05					
URBAN14	-.14					
USBORN	-.38					
WORKWOM	.07					
AGE					.33	.26
COMMIT			-.06	.53	-.00	.34
ED			-.11	.08	-.09	-.46
EDLIKE			-.63	-.38	-.18	.31
EDPROG			-.32	.77	-.15	-.73
HEALTH			.12	-.67	.04	.61
KOMW			.14	-.08	.17	.10
MARRY			-.13	-.20		
PROB			-.04	.67		
ROTSKALE			-.55	-.13	-.50	.06
VOCLINE			-.12	.07	-.24	-.07
Centroid-			-.35	.06		
Military	.63		-.65	.50	-.84	-.61
Centroid-	.38		-.30	-.25	-.38	.27
Interested						
Centroid-	-.25		.23	.05	.29	-.05
Not Interested						
Canonical						
Correlation	.54		.31	.20	.39	.23
Wilks' Lambda	.87***		.87***	.96*	.81***	.95**

<sup>a</sup>Functions computed using weighted data.

<sup>b</sup>Background and personal variables explained in Appendix 1-A.

<sup>c</sup>Chi-square test: \*\*\*significant at .01; \*\*significant at .05; \*significant at .1.

<sup>d</sup>Background variables function #2 not significant at .1.

group do not fall between those for the other two groups. Those who expressed interest in serving average slightly more education than either of the other groups, and are much more likely to have pursued a college preparatory high school program. In sum, successful recruitment of the interested group would have somewhat improved the quality of those serving relative to those not serving. With respect to representativeness variables, Table 1-11 shows the interested group to contain more foreign born individuals than the military group, but fewer than the non-interested group. It also shows that the military and the interested groups are relatively likely to be from urban, blue collar backgrounds.

In the three discriminant analyses on Table 1-12, the first function in each case separates the military group from the not interested group, with the interested group occupying an intermediate position. In contrast to results for both blacks and whites, the discriminant functions here show the interested group to be more similar to the military group than to the not interested group. The centroid of the interested group lies closer to that of the military than to that of the other civilian group in each case. The most important discriminators in the background function show those in the military to be less likely to be foreign born, to be less likely to be children of professionals and managers, to be more likely to be from families in which parents are relatively well educated and in which reading material was readily available at home. Two of these variables particularly distinguish the function from the background function in the two way comparison on Table 1-10. Parental education and parental occupation in professional/managerial jobs are not important variables in distinguishing between those serving and those not serving,

but are important in the three way comparison. Other things equal, children of professionals and managers are relatively unlikely to have expressed any interest or to have actually joined the service. On the other hand, those who join or express interest are likely to have relatively well educated parents as compared to those who expressed no interest, other things equal.

The most important discriminators in the first personal characteristics function show those in the military average more education, have greater desire for further education, have greater desire for further vocational training, and are more likely to complain of problems in getting good jobs in the civilian labor market. In the combination function, it is the job problems variable which dominates all others.

The second function using background variables is insignificant, suggesting that these variables are not capable of distinguishing further among the three groups. For the second personal characteristics function and the second combination function, the results focus on the separation between the military and the interested group, with the non-interested group occupying the intermediate position. The second function in each of these cases is much less important than the first. Like the results for whites, and in contrast to those for blacks, the results for Hispanics show the two civilian groups to be more alike than either is similar to the military group along this second dimension. For the most important discriminators in both the personal characteristics function and in the combination function are educational aspirations and type of high school program. Those in the military are clearly distinguished from the

interested group by having higher educational aspirations and being less likely to have had a college preparatory high school program. Age is also an important discriminator here.

In sum, among the Hispanics, the group of those who expressed interest in service in the armed forces is more similar to the group who actually served than either the military or the interested group is to the group of those who expressed no interest in service. The interested group is not clearly from a better socioeconomic background than either of the other groups. It does contain relatively more foreign born individuals than does the group that actually joined. Thus recruitment from the interested group would have made Hispanics in the service more representative with respect to being foreign born. Recruitment from the interested group would also have improved the relative quality of the already high quality military group. A final point: the variable which most clearly distinguishes the military group from the interested group is the high educational aspirations of those who actually joined--a result which is equivalent to that found for whites.

#### 11. Results--Disaggregation by Service

Tables 1-13 through 1-16 present disaggregations of the military group by branch of service.<sup>8</sup> Tables 1-13 and 1-14 report means and discriminant functions, respectively, for whites. Tables 1-15 and 1-16 do the same for blacks. The results suggest that there are substantial differences in characteristics among individuals who join each of the three services.

8. Hispanics and members of the Marine Corps are omitted in the following discussion. Sample sizes were too small for disaggregation.

TABLE 1-13  
COMPARISON OF MEAN VALUES  
OF SELECTED BACKGROUND AND PERSONAL CHARACTERISTICS  
OF WHITE MALES 18-22  
SERVING IN THE ARMED FORCES BY BRANCH OF SERVICE<sup>a,b,c</sup>

<u>Background Variables</u>	<u>Army</u>	<u>Navy</u>	<u>Air Force</u>	<u>Significance of F Test</u>
EDPAR	12.34	13.07	12.80	**
FAM14	.69	.74	.73	
OCCBLUE	.60	.48	.47	**
OCCMILI	.05	.06	.14	**
OCCPROF	.17	.24	.28	*
READING	3.19	3.30	3.30	
SIBLINGS	3.87	3.29	2.96	***
SOUTH14	.26	.27	.27	
URBAN14	.26	.27	.27	
USBORN	1.04	1.05	1.12	**
WORKMOM	.43	.56	.60	**
Sample Size	211	205	164	
<u>Personal Variables</u>				
AGE	19.91	20.17	20.22	**
COMMIT	.92	.90	.84	*
ED	11.37	11.65	12.04	***
EDLIKE	3.22	3.31	3.59	*
EDPROG	.17	.23	.28	*
HEALTH	.06	.07	.02	
KOWW	6.74	7.48	7.46	***
MARRY	.22	.14	.27	**
PROB	.79	.74	.59	***
ROTSKALE	8.71	8.04	7.56	***
VGCLIKE	.88	.85	.80	
Sample Size	221	207	167	

<sup>a</sup> Means computed using weighted data.

<sup>b</sup> Background and personal characteristics explained in Appendix 1-A.

<sup>c</sup> F test for differences among means: \*\*\*significant at .01.  
\*\*significant at .05.  
\*significant at .10.



TABLE 1-14  
DISCRIMINANT FUNCTIONS RELATING SELECTED BACKGROUND AND PERSONAL CHARACTERISTICS  
OF WHITE MALES IN THE ARMED SERVICES  
TO MEMBERSHIP IN THE ARMY, NAVY, AND AIR FORCE<sup>a,b,c</sup>

Variable	Background Variables Only		Personal Variables Only		Selected Background and Personal Variables	
	Function #1	Function #2	Function #1	Function #2	Function #1	Function #2
EDPAR	-.09	-.56			.16	.30
FAM14	.12	-.31			.05	-.23
OCCBLUE	-.12	.85			-.04	-.51
OCCMILI	.37	.71			-.23	-.40
OCCPROF	.77	.78			-.29	-.41
READING	.00	-.01			.22	-.15
SIBLINGS	-.49	.13				
SOUTH14	-.08	.05				
URBAN14	.04	.05				
USBORN	.39	.30				
WORKDOM	.44	-.34				
AGE						
COMMIT			.11	.35	-.27	-.10
ED			-.33	.12	-.20	.25
EDLINE			.57	.12	-.09	.23
EDPROG			.03	.29	.25	.13
HEALTH			.07	.02	-.43	-.08
KOMM			-.15	.37	-.07	-.33
MARRY			.31	-.61	.13	.18
PROB			.05	.59	-.22	.44
ROTSKALE			-.31	-.29	-.06	-.44
VOCLINE			-.23	.10	.31	.20
			-.04	.04	.20	-.09
Centroid-Army	-.33	.12				
Centroid-Navy	.02	-.24	-.43	.15	.46	-.22
Centroid-Air Force	.39	.15	.02	-.29	.05	.36
Canonical			.55	.16	-.66	-.17
Correlation	.29	.18	.39	.22		
Wilks' Lambda	.89***	.97*	.81***	.95***	.45	.27
					.74***	.93***

<sup>a</sup> Functions computed using weighted data

<sup>b</sup> Background and personal variables explained in Appendix 1-A.

<sup>c</sup> Chi-square test: \*\*\*significant at .01; \*significant at .1.

TABLE 1-15  
COMPARISON OF MEAN VALUES  
OF SELECTED BACKGROUND AND PERSONAL CHARACTERISTICS  
OF BLACK MALES 18-22 SERVING IN THE ARMED FORCES BY BRANCH OF SERVICE<sup>a,b,c</sup>

<u>Background Variables</u>	<u>Army</u>	<u>Navy</u>	<u>Air Force</u>	<u>Significance of F Test</u>
EDPAR	11.90	11.35	13.29	**
FAM14	.58	.17	.68	***
OCCBLUE	.63	.56	.84	*
OCCMILI	.09	0	.08	
OCCPROF	.08	.09	.06	
READING	2.95	3.40	3.45	**
SIBLINGS	4.74	5.45	3.68	*
SOUTH14	.65	.77	.37	**
URBAN14	.13	.09	.17	
USBORN	1.01	1.05	1.04	
WORKMOM	.64	.81	.67	
Sample Size	106	25	32	
<u>Personal Variables</u>				
AGE	20.25	20.42	20.03	
COMMIT	.90	.78	.81	
ED	11.69	12.00	12.41	***
EDLIKE	3.53	3.99	4.37	**
EDPROG	.30	.19	.42	
HEALTH	.01	.05	.03	
KOWW	5.63	7.44	7.51	***
MARRY	.16	.19	.21	
PROB	.75	.74	.81	
ROTSKALE	9.04	8.08	7.61	**
VOCLIKE	.94	1.00	.81	**
Sample Size	114	25	32	

<sup>a</sup> Means computed using weighted data.

<sup>b</sup> Background and personal characteristics explained in Appendix 1-A

<sup>c</sup> F test for differences among means: \*\*\*significant at .01.  
\*\*significant at .05.  
\*significant at .10.

TABLE 1-16  
DISCRIMINANT FUNCTIONS RELATING SELECTED BACKGROUND AND PERSONAL CHARACTERISTICS  
OF BLACK MALES 19-22 IN THE ARMED SERVICES  
TO MEMBERSHIP IN THE ARMY, NAVY AND AIR FORCE<sup>a, b, c</sup>

Variable	Background Variables Only		Personal Variables Only		Selected Background and Personal Variables	
	Function #1		Function #1		Function #1	Function #2
EDPAR	.40				.14	.29
FAM14	.28				-.07	.47
OCCBLUE	.37				.30	.30
OCCMILI	.21					
OCCPROF	.11				.11	-.24
READING	.05				.03	-.33
SIBLINGS	-.36				-.21	-.39
SOUTH14	-.40				-.12	.21
URBAN14	.20					
USBORV	-.04					
NOR10X14	-.34					
AGE			-.24		-.21	.04
COMMIT			-.06			
ED			.44		.50	-.04
EDLIKE			.31			
EDPROG			-.22		.19	.29
HEALTH			.08			
KOWN			.53		.58	-.48
MARRY			.12			
PROB			.00			
ROTSKALE			-.36		-.18	.03
VOCLINE			-.14		.23	-.23
Centroid-Army	-.05		-.38		-.42	.15
Centroid-Navy	-.84		.52		.33	-1.18
Centroid-Air Force	.85		.97		1.12	.46
Canonical Correlation	.50		.56		.61	.53
Wilks' Lambda	.68***		.63***		.45***	.72***

<sup>a</sup>Functions computed using weighted data.

<sup>b</sup>Background and personal variables explained in Appendix 1-A.

<sup>c</sup>Chi-square test: \*\*\*significant at .01.

<sup>d</sup>Second background and personal functions insignificant at .1.

As might be expected, Table 1-13 shows that for whites, those in the Army appear to be of lower quality, as measured by the variables here, than those in the Navy, who are in turn of lower quality than those in the Air Force. Thus, those in the Army have less education, lower educational aspirations, higher Rotter scale scores, more trouble getting jobs in the civilian labor market, etc. than do those in the Navy. Values on the same variables for those in the Navy in turn relate similarly to values for those in the Air Force. A similar relationship among the services appears to hold for socioeconomic background as well, although the distinction between Navy and Air Force is not very clear. Two additional points are worth noting. Those in the Air Force are more likely to be children of military families, and are also more likely to be foreign born than is true of either of the other services.

The first discriminant functions on Table 1-14 maximize the separation between the Army and the Air Force, with the Navy occupying the intermediate position, as would be expected from examination of the means just discussed. The canonical correlation coefficient indicates that the variables succeed in separating the groups to a considerable extent. The key discriminators include years of education, the variable reflecting prior difficulty in the civilian labor market, parental occupation as professional or manager, and whether the individual was foreign born.

The second functions in essence separate the Navy from the other two services. The centroids for the Army and the Air Force are little separated along this second dimension. One of the key discriminators is marital status, which is not surprising given the large amounts of sea

duty for those in the Navy. Those in the Navy are much less likely to be married than are members of either of the other services. The other important discriminators include the KOWW score and three parental occupation variables: blue collar, professional/managerial, and military.

Among the blacks, Table 1-15 suggests that relative to those in the Army and Navy, those in the Air Force are from better socioeconomic backgrounds (better educated parents, fewer siblings, living with natural parents at 14, more reading material available at home) and are of higher quality (more education, higher educational aspirations, higher KOWW scores, lower Rotter scores). Those in the Air Force are also more likely to be from blue collar families and are less likely to be from the South than are those in the other two services. As is true for whites, the Navy occupies an intermediate position on most of these variables relative to the other services. Patterns revealed by the discriminant functions are not as clear as is true for whites. The first discriminant function for all three analyses--background variables, personal characteristics, and combined background and personal variables, is highly significant in each case. The background function maximizes separation between the Navy and the Air Force with the Army in the intermediate position. On the other hand, the personal characteristics function and the combination function both separate the Army from the Air Force with the Navy in the intermediate position. The two key discriminators in the combination function are the KOWW score and years of education, both showing that those in the Air Force are most likely to be of high quality. The second discriminant function in the three analyses is significant only for the

combination analysis. It separates the Air Force from the Navy. The most important discriminators are the KOWW score and family circumstances.

The comparison discussed in this section is useful in assessing the relative quality among members of the three services. It is only indirectly useful in examining the representativeness issue but can be so used if the results are compared to results for civilians in previous sections. Two points emerge clearly from the analysis discussed in this section. First, there are quite substantial differences in the background and personal characteristics of those who join each of the three services. Second, Air Force members are of relatively high quality in comparison to those in the other services.

#### 12. Results--Two Way Comparison--By Service

Tables 1-17 and 1-18 present a different service disaggregation from that discussed in Section 11 above. Here, those serving each branch are compared with those who expressed interest in serving in that branch.<sup>9</sup> Blacks, whites, and Hispanics are combined here, and racial/ethnic dummy variables are introduced into the discriminant functions. Here, then, we can investigate whether those who expressed interest in the Army are similar to those who actually joined, even though, perhaps, those who expressed interest in serving in the Air Force are not different from those who joined.

For the Army, mean values of 14 of the 24 discriminating variables on Table 1-17 show significant differences between those serving and those interested. Far fewer significant differences show up for the Navy and

9. Members of the Marine Corps are excluded from this analysis.

TABLE 1-17  
COMPARISON OF MEAN VALUES OF SELECTED BACKGROUND AND PERSONAL CHARACTERISTICS  
OF MALES 18-22 IN THE MILITARY  
AND MALES 18-22 NOT IN THE MILITARY WHO EXPRESSED INTEREST IN SERVING BY BRANCH OF SERVICE<sup>a, b, c, d</sup>

Background Variables	Army		Navy		Air Force	
	Serving	Interested	Serving	Interested	Serving	Interested
EDPAR	14.01	14.52	12.71	12.90	12.89	3.29
EDM14	.66	.80***	.66	.81***	.72	.80
OCCBLUE	.60	.50*	.49	.47	.53	.45
OCCMILI	.06	.01*	.05	.03	.12	.04**
OCCPROF	.14	.25**	.22	.24	.24	.32
READING	3.10	3.11	3.29	3.30	3.34	3.29
STELLINGS	4.18	3.40***	3.52	3.11	3.11	3.18
SOUTH14	.37	.24**	.33	.26	.28	.31
URBAN14	.20	.20	.24	.18	.26	.20
USBORN	1.04	1.02	1.05	1.03	1.11	1.04**
WORKDOM	.49	.45	.58	.47	.60	.51
Sample Size	82	564	59	485	49	404
Personal Variables						
AGE	20.02	19.45***	20.17	19.47***	20.18	19.53***
BLACK	.31	.18***	.10	.11	.15	.15
CA-41T	.91	.86	.89	.85	.84	.86
ED	11.49	11.73	11.69	11.86	12.09	12.09
EDLIXE	3.33	2.74***	3.40	3.04	3.73	3.12**
EDPROG	.21	.26	.21	.32*	.30	.39
HEALTH	.04	.06	.07	.06	.02	.05
HISPANIC	.07	.04	.07	.04	.03	.03
KOMY	6.29	6.77*	7.39	7.03	7.43	7.00
MARRY	.19	.07***	.15	.05***	.27	.04***
PIOR	.79	.69**	.75	.70	.63	.68
ROTSKALE	8.83	8.17**	8.05	7.97	7.57	7.74
VOCLIXE	.89	.80**	.87	.77*	.31	.77
Sample Size	87	570	60	477	49	101

<sup>a</sup> Means computed using weighted data.

<sup>b</sup> Background and personal characteristics explained in Appendix 1-A.

<sup>c</sup> Two-tail t test: \*\*\*difference in mean value of those serving as compared to those interested significant at .01.

\*\*significant at .05.

\*significant at .1.

<sup>d</sup> Interested group in each case includes those who expressed interest in that branch of service regardless of whether interest was also expressed in other branches.

TABLE 1-18  
DISCRIMINANT FUNCTIONS RELATING SELECTED BACKGROUND  
AND PERSONAL CHARACTERISTICS OF MALES 18-22  
TO MEMBERSHIP IN THE MILITARY  
AND INTEREST IN THE MILITARY BY BRANCH OF SERVICE<sup>a,b,c</sup>

<u>Variable</u>	<u>Army</u>	<u>Navy</u>	<u>Air Force</u>
EDPAR			.14
FAM14	.30	-.36	.14
OCCBLUE	-.30		
OCCMILI	-.20		-.21
OCCPROF			
READING	-.17		
SIBLINGS	-.21		
SOUTH14	-.17		
URBAN14		.21	-.15
USBORN			-.26
WORKMOM			-.15
AGE	-.48	.67	-.38
BLACK			
COMMIT	-.12		
ED	.26	-.48	.24
EDLIKE	-.60	.50	-.44
EDPROG	.14	-.24	
HEALTH	.12		
HISPANIC	-.11		
KOWW		.34	-.24
MARRY	-.32	.30	-.67
PROB			
ROTSKALE	-.20		-.13
VOC LIKE	-.12	.29	
Centroid-military	-.97	.93	-1.12
Centroid-interested	.15	-.12	.14
Canonical correlation	.38	.33	.40
Wilks' Lambda	.86***	.89***	.84***

<sup>a</sup>Functions computed using weighted data.

<sup>b</sup>Background and personal variables explained in Appendix 1-A.

<sup>c</sup>Chi-square test: \*\*\*significant at .01.



for the Air Force--five in each case. These univariate results for the Army suggest that relative to those who expressed interest but did not join, blacks, Southerners and those from lower socioeconomic backgrounds are overrepresented in the Army. Those who joined are also perhaps of lower quality, but this is less clear. Army members have lower mean KOWW scores, a higher mean Rotter score, and expressed experiencing greater difficulty in getting good jobs in the civilian sector. On the other hand, those who joined have significantly higher educational and vocational aspirations and reveal no significant differences in amount of education or type of high school program. The discriminant function for the Army is dominated by the educational aspirations variable, with high aspirations again identified with the likelihood of actually serving. The next two most important discriminators suggest that those serving are likely to be older and are more likely to be married. In short, the most important discriminators are not those showing that Army members are of inferior quality or of lower socioeconomic backgrounds relative to those who expressed interest in joining the Army but did not do so.

For the Navy, Tables 1-17 and 1-18 suggest that few of the representativeness or quality variables distinguish members from those who have expressed interest. The key variable in the discriminant function shows that those who serve are likely to be older. The second and third most important discriminators suggest that those who are serving have higher educational aspirations but fewer years of education. Those who serve are more likely to be married than are their interested civilian counterparts, but as we have noted in the previous section, less likely to be married than those who are serving in other branches.

For the Air Force, as for the Navy, the data suggest for the most part that neither quality nor representativeness variables distinguish importantly between those who joined and those who have not. The most important variable in the discriminant function is marital status. Service members are far more likely to be married. The second and third largest contributions are made by variables showing that service members have higher educational aspirations and tend to be older than members of the interested group.

Overall, a case cannot be made that those who actually join the Navy or the Air Force are of lower quality or are from lower socioeconomic backgrounds than are those who expressed interest in those services but have not joined. The service members are, if anything, of higher quality. Those who actually joined also seem similar to those in the interested group with respect to the representativeness variables. For the Army, those who actually join may in fact be from lower socioeconomic backgrounds and of lower quality. Even for the Army, however, the multivariate analysis suggests that the important factors differentiating Army members from those interested are not ones which make evident inferior quality or lower socioeconomic background.

As has been shown consistently in previous sections, one variable which strongly differentiates those in the service from those who have not joined is the high educational aspirations of those in the service. We find here that this result holds across branches just as we have previously found that it holds across racial/ethnic groups.

### 13. Summary and Conclusion

In this chapter we have reported results of univariate and multivariate analyses of a variety of socioeconomic characteristics comparing a sample of males 18-22 years old serving in the military with a similar cohort not serving in the military. Additionally, the non-military group was divided into two groups--those who had at some point expressed interest in serving in the armed forces, and those who had expressed no such interest. Interest in serving is defined here to include all individuals who talked to military recruiters. A three way comparison of those two groups and those currently serving was then made. Separate analyses were performed for whites, blacks, and Hispanics. Limited disaggregation by branch of service is also reported. Comparisons of socioeconomic characteristics of those serving in the Army, Navy, and Air Force were made, and comparisons of those serving and those who expressed interest in serving in each of those branches were also made. The data are drawn from the first wave of the National Longitudinal Survey of Labor Force Behavior, Youth Cohort 1979. The multivariate technique used throughout was multiple discriminant analysis.

There are several questions that can be addressed with the comparisons made here. The first concerns whether those who serve in the military are representative of the society from which they are drawn. We presume it desirable that the military be representative in politically relevant ways--for example, race and socioeconomic background, but not age, religion, or marital status. We perceive the conventional wisdom to be that the volunteer force is not representative, but beyond information on the racial factor, this is not as well documented as might be expected. Accurate

empirical information on the representativeness, or lack thereof, of the AVF is obviously the first requirement for policy designed to make the force representative.

A second question concerns whether the quality of those serving is equivalent to that of those in the same age/sex group who have chosen not to serve. If equivalent, or representative, quality is desirable, then this is not a different question from the first one posed above. Quality, however measured, is just another dimension of representativeness. In fact, however, the important consideration with respect to quality is whether quality is sufficient to perform the missions of the armed services--which may necessitate equivalent quality, or higher or lower quality. We perceive the conventional wisdom to be that those in the AVF are of inferior quality relative to those who are not serving. Even if true, this is not necessarily bad, if quality is adequate to the job. However, it also appears to be conventional wisdom that quality is inadequate, or at least barely adequate. Empirical information on relative quality provides insight into the difficulty in improving the quality of the AVF by in effect defining the size of the manpower pool of adequate quality. If those who are serving are in fact of inferior quality as compared to those not serving, the size of the group from which to draw to improve quality is relatively large.

The first two questions lead to a third. If it is desirable to change the makeup of the military to improve quality and/or representativeness, it might be asked who among those who have not joined the service have expressed interest in joining? We make the presumption that

those who have been interested, or individuals like them, would be easier to recruit than those who have never expressed interest. The question is, would those individuals be desirable in the sense that they would improve the makeup of the AVF, or are the services already getting the best of those who have expressed any interest in joining? If the interested group is a desirable one, a further question concerns whether the characteristics of the interested group provide any guides to recruiting strategy.

A final question which can be addressed concerns whether individual branches of service differ markedly with respect to answers to any of the above questions.

With respect to representativeness, it is well known that blacks, but not Hispanics, are overrepresented in the military. Our analysis here suggests that serving whites are from relatively low socioeconomic backgrounds; that serving blacks are from representative or above average socioeconomic backgrounds; that foreign born Hispanics are underrepresented in the military, but that otherwise serving Hispanics are reasonably representative of the Hispanic population in the age/sex cohort.

With respect to quality, our results are less clearly supportive of what we perceive to be the conventional wisdom. The evidence suggests that serving whites are of relatively low quality, but that evidence is not overwhelming. Serving blacks are clearly of higher quality than non-serving blacks, and serving Hispanics are of equal quality to, or higher quality than, their non-serving counterparts. The overall picture that emerges is not one of a military populated by the "losers" in the age group. If quality improvement is needed, it cannot come to any large

degree by merely recruiting representative quality manpower. One variable examined in this context rates particular mention. Educational aspirations, as measured by level of schooling an individual desires to complete, of those in the military are found to be consistently higher than the aspirations of those in the non-military group. This variable, which we regard as an important quality indicator, is the one which most clearly discriminates between the serving and non-serving groups in our analyses of whites and Hispanics. It is also one of the most important discriminators in the analysis of the blacks. Further, the educational aspirations variable sharply distinguishes the serving group from the group that has shown interest in serving. Educational levels, aspirations, and expectations are further explored in Chapter 4.

When we divide the civilian group into those who have expressed interest in service and those who have not expressed interest, we find that, for whites, the interested group is on average from better socioeconomic backgrounds than is the military group, although from lower backgrounds than the group that expressed no interest. Accordingly, recruiting from this interested group would make the AVF more representative. We also find for whites that the interested group is perhaps of higher quality than the military group (for example, they have more education and have experienced fewer civilian job market problems), but the variable which most clearly distinguishes the military from the interested group is the desire by those serving for more formal education. This finding in turn calls into question the efficacy of liberalized educational benefits as a recruiting attraction because those with the greatest

aspirations apparently already join, while those who have expressed interest but don't join are not evidently discouraged by lack of educational benefits. Among blacks, recruitment from the interested group would leave socioeconomic status of those serving as representative as it is presently, but it would probably tend to make the group of blacks serving disproportionately from urban and perhaps Southern areas. Recruitment from the interested group would reduce black manpower quality in the military, but it is worth noting that the interested group appears to be of higher quality than the not interested group. Among Hispanics, recruitment from the interested group would also leave socioeconomic status of those serving representative of the entire Hispanic population in the age/sex group, but it would make the group of Hispanics serving more representative with respect to proportion of foreign born. The interested group is of equivalent quality to, or even higher quality than the military group, although as is true for whites, educational aspirations is the variable most sharply distinguishing the military from the interested group.

Several points emerge from the service disaggregations. First, for both blacks and whites, those serving in the Air Force appear to be of high quality relative to those serving in the Army or Navy. Among blacks, it also appears to be true that those serving in the Air Force are from better socioeconomic backgrounds than are those in the other two services; among whites, those serving in the Army are from lower socioeconomic backgrounds. Second, with respect to the socioeconomic characteristics examined, those who expressed interest in serving in the Army are more

unlike those who actually joined the Army than is true of the comparison between those interested and those serving in either the Air Force or the Navy. Those expressing interest in serving in the Army are probably of higher quality and from better socioeconomic backgrounds than those who actually joined. The same cannot be said of either the Navy or the Air Force. Finally, the difference in educational aspirations between those serving and those interested, noted above, holds for all three branches.



## APPENDIX 1-A

### Definitions of Independent Variables

#### A. Variables reflecting background characteristics

1. EDPAR: Highest grade of school completed by mother or father, whichever is greatest.
2. FAM14: Dummy variable. Value of one if respondent lived with his mother and father at age 14; otherwise, zero.
3. OCCBLUE: Dummy variable. Value of one if occupation of father has a three digit occupational code 401 through 575, 601 through 715, 740 through 785, 821 through 824, 901 through 984. If no father, then occupation of mother. Zero otherwise.
4. OCCFARM: Dummy variable. Value of one if occupation of father has a three digit occupational code 801 through 802. If no father, then occupation of mother. Otherwise, zero.
5. OCCMILI: Dummy variable. Value of one if occupation of father has a three digit occupational code 580 through 590. If no father, then occupation of mother. Otherwise, zero.
6. OCCPROF: Dummy variable. Value of one if occupation of father has a three digit occupational code 001 through 245. If no father, then occupation of mother. Otherwise, zero.
7. OCCSALE: Dummy variable. Value of one if occupation of father has a three digit occupational code 260 through 395. If no father, then occupation of mother. Otherwise, zero.
8. READING: Index, range 0 to 4, composed of the sum of three dicotomous variables with the third given double weight. The three variables reflect availability of reading material in household when the respondent was 14. First is the availability of magazines; second, newspapers; third, a library card.
9. SIBLINGS: Number of siblings.
10. SOUTH 14: Dummy variable. Value of one if respondent resided at age 14 in the South as defined by the U.S. Census Bureau; otherwise, zero.
11. URBAN14: Dummy variable. Value of one if respondent lived in a country or farm area at age 14; otherwise, zero.

12. USBORN: Dummy variable. Value of one if respondent was born in the United States; two, otherwise.
13. WORKMOM: Dummy variable. Value of one if adult female in household when respondent was 14 worked for pay; otherwise, zero.

B. Variables reflecting personal characteristics

1. AGE: Age of respondent as of interview date. Ninety two percent of the interviews were conducted in February through May, 1979.
2. COMMIT: Dummy variable. Value of one if respondent answers "yes" to the question, "If, by some chance you were to get enough money to live comfortably without working, do you think you would work anyway?"; otherwise, zero.
3. ED: Years of formal education completed.
4. EDLIKE: Index measuring educational aspirations. Value of zero if respondent wants no more education than he has currently completed, regardless of level; one if respondent wants to complete more years of school than he has presently, but wants to complete less than 12 years of school; two if respondent wants to complete 12 years; three if respondent wants to complete more than 12 but less than 16 years; four if respondent wants to complete 16 years; five if respondent wants to complete more than 16 years.
5. EDPROG: Dummy variable. Value of one if respondent's high school program is or was college preparatory; zero otherwise.
6. HEALTH: Dummy variable. Value of one if respondent claims that health prevents working, limits kind of work, or limits amount of work; zero otherwise.
7. KOWW: Score on a test of the knowledge of the world of work. Test consists of 9 multiple choice questions regarding the kinds of activities performed by a person in a certain occupation. Range is 0 to 9.
8. MARRY: Dummy variable. Value of one if respondent is presently married; otherwise, zero.
9. PROB: Dummy variable. Value of one if respondent answers "yes" to any of a series of seven items following the question: "Have any of the following things ever caused you any problems in getting a good job?"; otherwise, zero.

10. ROTSCALE: Score on abbreviated Rotter scale designed to measure an individual's perceived locus of control over his environment. Range is 4 to 16. Lower scores indicate greater perceived internal control.
11. VOCLIKE: Dummy variable. Value of one if respondent answers "yes" to the question, "Not counting regular schooling like high school or college, would you like to get any other occupational or job training?"; otherwise, zero.

## CHAPTER 2

### YOUTH ATTITUDES TOWARD THE MILITARY AND INTENTIONS TO SERVE

In this chapter we examine the characteristics of men too young to serve in the military who have expressed some interest in serving as compared to those in the same age cohort who express no such interest. The ages of the group examined are 14 through 17. Whites, blacks and Hispanics are examined separately. Several purposes can be served by such a study. First, some insight can be gained into the numbers and characteristics of those who will subsequently serve. Second, we can use the results as a first step in developing a predictor of likelihood of service, based on early expressions of interest in serving. Third, the study provides initial information on the characteristics of those who express interest but ultimately decide not to join. All of these purposes in turn relate to the design of recruiting strategies.

Conclusions from a cross section study such as this one must necessarily be tentative. More complete analysis of the topic will be possible, of course, when subsequent waves of the NLS panel data become available. We will then have information on what those who expressed interest actually do.

#### 1. Expressions of Interest

Respondents were asked two questions which may be used to define an expression of interest in military service:

- 1) Do you think for a young person to serve in the military is a good thing?

- 2) Do you think, in the future, that you will try to enlist in the military?

There were four possible responses to each question: definitely, probably, probably not, and definitely not. Respondents might also answer "don't know" to either or both of these questions. Combinations of responses to the questions are interpreted as grouping respondents by intensity of interest in serving. Eight such combinations are formulated and examined. The most restrictive criterion (i.e., defining the group expressing the most intense interest) requires a response of "definitely" to both questions. It encompasses only 4.8 percent of the whites, 4.7 percent of the blacks, and 7 percent of the Hispanics. The least restrictive criterion requires a response of "definitely" or "probably" to the first question with no restriction on the response to the second question. This criterion defines a group which includes many with at best only a casual interest in serving. Nearly 70 percent of the whites, 64 percent of blacks, and 66 percent of Hispanics fall into this category. A listing of the eight interest measures in order of their empirical restrictiveness, and the proportion of the white population falling into each category is found on Table 2-1. Details of the derivation of the interest measures are found in Appendix 2-A. The blacks will be considered in detail in Section 7 below; the Hispanics in Section 10.

## 2. Expressions of Interest - Whites

One would expect that the numbers expressing interest in serving would change as age increases. Some of those who, at age 14, say that they expect to join the military or at least think that it would be a good thing to do, decide at age 17, when they are nearing the time when they actually

TABLE 2-1  
EXPRESSIONS OF INTEREST IN MILITARY SERVICE  
BY WHITE MALES 14-17, BY AGE<sup>a,b,c,d</sup>

Measures of Interest	All Ages	Age				Significance of $\chi^2$
		14	15	16	17	
ATT1	68.6% (1195)	68.3% (239)	67.1% (321)	65.5% (298)	73.6% (337)	.05
EXP1	31.1% (542)	36.9% (129)	37.1% (177)	27.6% (126)	23.9% (109)	.01
ATTEXP1	26.9% (469)	32.2% (113)	31.6% (151)	24.1% (110)	20.8% ( 95)	.01
ATT2	16.4% (285)	18.7% ( 65)	14.2% ( 68)	18.5% ( 84)	14.7% ( 67)	-
ATTEXP2	11.1% (193)	12.8% ( 45)	10.6% ( 51)	12.1% ( 55)	9.2% ( 42)	-
EXP2	7.7% (134)	8.8% ( 31)	9.1% ( 43)	8.5% ( 39)	4.5% ( 21)	.05
ATTEXP3	7.2% (125)	7.6% ( 27)	8.4% ( 40)	8.1% ( 37)	4.5% ( 21)	.1
ATTEXP4	4.8% ( 84)	4.8% ( 17)	6.0% ( 29)	5.6% ( 25)	2.8% ( 13)	.1

<sup>a</sup>Percentages computed using weighted data.

<sup>b</sup>Sample sizes in parentheses. Sample sizes reflect weighted data rounded to whole numbers.

<sup>c</sup>Measures of interest are explained in Appendix 2-A.

<sup>d</sup>Chi-square test is for difference in distribution of positive interest in military service across age groups.

can join, that they do not wish to leave home, or that they wish to go on for further schooling, or to join the civilian labor market. On the other hand, some who expressed little interest at 14 may feel at 17 that military service is their best alternative. Table 2-1 breaks down each of the eight interest measures by age. The general pattern of responses indicates declining interest in serving as age increases. However, the least restrictive criterion (ATT1), involving attitude only, shows that approval of the concept of young people serving is greater among 17 year olds than among younger people. Appropriate significant tests suggest this difference is significant. A linear decline in interest as age increases is apparent using the second and third measures (EXP1 and ATTEXP1). The pattern is a little less clear for the more restrictive measures. In each case, interest is roughly constant from 14-16, then drops sharply for those who are 17. That result is statistically significant for the three most restrictive definitions.

It is also useful to look at expressions of interest by school year group. These results will differ somewhat from the age group results because school years overlap age groups, because some people are ahead or behind their age group in school, and because a proportion of the sample dropped out of school. Here we include 18 year olds who are still in school. The results shown on Table 2-2 are broadly similar to the age group results on Table 2-1, but more dramatically show decline in interest as education increases. The least restrictive measure of interest (ATT1), a favorable attitude toward service, is constant across grades of schooling. However, interest as expressed by any of the other measures shows a statistically significant decline as grade of school increases. The decline in interest

TABLE 2-2  
EXPRESSIONS OF INTEREST IN MILITARY SERVICE  
BY WHITE MALES 14-18,<sup>a,b,c,d</sup>  
BY GRADE OF SCHOOL ATTENDING

Measure of Interest	All Grades	Grade Attending					Significance of $\chi^2$
		8	9	10	11	12	
ATT1	68.7% (1248)	69.9% ( 95)	66.8% (320)	66.7% (387)	71.4% (305)	69.9% (247)	-
EXP1	29.9% (544)	49.6% ( 67)	35.8% (172)	31.6% (133)	25.6% (109)	17.7% ( 63)	.01
ATTEXP1	25.9% (471)	44.4% ( 60)	30.9% (148)	27.4% (115)	22.6% ( 96)	14.3% ( 51)	.01
ATT2	15.0% (273)	19.7% ( 27)	16.8% ( 80)	15.0% ( 63)	15.3% ( 65)	10.5% ( 37)	.1
ATTEXP2	10.1% (184)	13.1% ( 18)	12.3% ( 59)	10.5% ( 44)	10.8% ( 46)	4.7% ( 17)	.01
EXP2	6.8% (124)	14.1% ( 19)	8.6% ( 41)	7.1% ( 30)	5.9% ( 25)	2.6% ( 9)	.01
ATTEXP3	6.3% (115)	12.0% ( 16)	8.0% ( 39)	6.5% ( 27)	5.9% ( 25)	2.1% ( 7)	.01
ATTEXP4	4.1% ( 75)	4.4% ( 6)	5.4% ( 26)	5.2% ( 22)	3.8% ( 16)	1.3% ( 5)	.05

<sup>a</sup>Percentages computed using weighted data.

<sup>b</sup>Sample sizes in parentheses. Sample sizes reflect weighting.

<sup>c</sup>Measures of interest are explained in Appendix 2-A.

<sup>d</sup>Chi-square test is for difference in distribution of positive interest in military service across school groups.



TABLE 2-3  
EXPRESSIONS OF INTEREST IN MILITARY SERVICE  
BY WHITE MALE SCHOOL DROPOUTS, AGES 14-18,  
BY AGE AND GRADE OF SCHOOL COMPLETED<sup>a,b,c</sup>

Measure of Interest	All Ages	Age				All Grades	Grade Completed			
		14	15	16	17		≤8	9	10	11
ATT1	77% (70)	92% ( 2)	80% (12)	79% (30)	73% (27)	75% (122)	84% (46)	63% (24)	77% (30)	68% (21)
EXP1	42% (38)	11% ( 0)	75% (11)	33% (12)	40% (15)	37% (61)	49% (27)	39% (14)	28% (11)	26% ( 8)
ATTEXP1	35% (32)	11% ( 0)	56% ( 8)	29% (11)	34% (12)	33% (53)	42% (23)	34% (13)	23% ( 9)	23% ( 7)
ATT2	33% (30)	11% ( 0)	32% ( 5)	41% (16)	26% (10)	27% (44)	36% (20)	32% (12)	28% (11)	6% ( 2)
ATTEXP2	22% (20)	11% ( 0)	32% ( 5)	20% ( 8)	21% ( 8)	19% (31)	20% (11)	26% (10)	18% ( 7)	6% ( 2)
EXP2	20% (18)	0 ( 0)	42% ( 6)	19% ( 7)	13% ( 5)	13% (21)	15% ( 8)	18% ( 7)	13% ( 5)	0 ( 0)
ATTEXP3	18% (17)	0 ( 0)	32% ( 5)	19% ( 7)	13% ( 5)	11% (18)	13% ( 7)	18% ( 7)	8% ( 3)	0 ( 0)
ATTEXP4	15% (13)	0 ( 0)	32% ( 5)	16% ( 6)	8% ( 3)	9% (14)	9% ( 5)	16% ( 6)	8% ( 3)	0 ( 0)

<sup>a</sup>Percentages computed using weighted data.

<sup>b</sup>Sample sizes in parentheses. Sample sizes reflect weighted data rounded to whole numbers.

<sup>c</sup>Measures of interest are explained in Appendix 2-A.

from the 11th to the 12th grades is particularly sharp, resulting in less than 3 percent of the white sample expressing interest in serving by the three most restrictive measures of interest.<sup>1</sup>

Table 2-3 shows school dropouts by age and by grade completed. Interest in serving in the military is greater for this group than the average for all young men for each age group and for each grade completed.

In sum, a significant core of young white males express a fairly strong interest in serving and a far larger number at least express a favorable attitude toward the concept of service. However, the size of the group expressing strong interest in serving declines as age and school grade increases, so that among those reaching the age when the decision to join can in fact be made, few are strongly inclined toward military service. Obviously, the supply of potential recruits would be significantly augmented if the decline in interest could be somehow arrested.

### 3. Characteristics of Youth Interested in Joining the Military - Whites

Some insight into causes of the pattern described above may be gained by examination of the personal and socio-economic characteristics of those who express some interest in serving in comparison to those who do not, and particularly by examination of changes in those distinguishing characteristics as age and/or grade increases. To define the groups for analysis, we selected three of the interest measures: the least restrictive (ATT1),

1. Some of those who would have been in the 12th grade and are interested in military service will already have joined. Such individuals would have to be school dropouts. The existence of this group is part of the explanation for the sharp decline in interest.

which reflects only a favorable attitude toward military service for young people; one of the most restrictive (EXP2), which requires a response of "definitely" to the question regarding whether the individual expects to serve; and what we believe to be the most reasonable measure (ATTEXP1), which requires a positive ("probably" or "definitely") response to both the attitude and the expectation question. Thirteen family background variables and seven variables reflecting personal characteristics and circumstances were tested for the entire 14-17 group expressing interest in military service as compared to their counterparts not expressing interest. Complete variable descriptions are contained in Appendix 2-B.

Table 2-4 contains mean values for each variable for the interested and non-interested groups by each measure, together with the results of a univariate test of differences in those means. The only variable among those listed to show a significant difference in means across all three measures of interest is the variable representing parental occupation as professional or manager. Children of people in those broad occupational categories are less likely to be interested in joining the military than are children of parents in other occupational groups. By the stronger two interest measures (ATTEXP1 and EXP2), five other variables have significantly different means. Those interested in service are found to be children of less well educated parents, to score lower on the knowledge-of-the-world-of-work scale (KOWW)<sup>2</sup> and to have lower educational

2. This scale is cited by Kim, et al (12) as a proxy for IQ. We believe that it is a poor proxy for teenagers, except for a given single year age group. Knowledge of the world of work accumulates rapidly with age among teens. The fact that those expressing interest in the military score lower may well merely reflect the fact that they are on average younger than those who express lack of interest. As age increases, interest in joining the armed forces wanes, as we show in Section 2.

TABLE 2-4  
MEAN VALUES OF SELECTED BACKGROUND AND PERSONAL CHARACTERISTICS  
OF WHITE MALES 14-17  
INTERESTED AND NOT INTERESTED IN JOINING THE ARMED FORCES<sup>a,b,c,d,e</sup>

Background Characteristics	Measure of Interest					
	ATT1		ATTEXP1		EXP2	
	interested	not interested	interested	not interested	interested	not interested
EDPAR	12.92	13.09	12.51	13.14***	12.11	13.05***
FAM14	.78	.78	.76	.79	.70	.79***
OCCBLUE	.48	.43*	.54	.44***	.48	.46
OCCFARM	.03	.02	.03	.03	.02	.03
OCCMILI	.02	.02	.02	.02	.02	.02
OCCPROF	.27	.33***	.19	.32***	.17	.30***
OCCSALE	.14	.13	.14	.13	.19	.13*
READING	3.05	3.12	2.95	3.12**	3.02	3.08
SIBLINGS	2.86	2.84	2.97	2.82	2.96	2.85
SOUTH14	.27	.27	.28	.26	.31	.26
URBAN14	.28	.23**	.28	.26	.25	.26
USBORN	1.03	1.03	1.03	1.03	1.02	1.03
WORKMOM	.53	.52	.55	.52	.49	.53
Sample Size	1164	530	452	1241	128	1565
<u>Personal Characteristics</u>						
EDLIKE	3.20	3.30*	3.00	3.31***	2.97	3.25**
EDNOW	.94	.95	.93	.95*	.86	.95***
EDPROG	.30	.32	.21	.34***	.24	.31*
HEALTH	.05	.06	.04	.06	.02	.05
KOWN	5.82	5.77	5.48	5.93***	5.18	5.86***
ROTSKALE	8.60	8.75	8.82	8.58*	9.03	8.62**
WORKING	.40	.35**	.38	.39	.40	.39
Sample Size	1185	541	463	1263	130	1596

<sup>a</sup> Means computed using weighted data.

<sup>b</sup> Sample sizes reflect weighted data rounded to whole numbers.

<sup>c</sup> Measures of interest are explained in Appendix 2-A.

<sup>d</sup> Background and personal variables are explained in Appendix 2-B.

<sup>e</sup> Two-tail t test - \*\*\*difference in mean value for those interested in military service as compared to those not interested is significant at .01.  
\*\*difference is significant at .05.  
\*difference is significant at .1.

aspirations. They are also more likely to be in a non-college preparatory high school program, and more likely to be school dropouts. Several other variables are also significant by at least one of the interest measures. Those interested in service are more likely to be from blue collar families (ATT1, ATTEXP1); are from homes in which there is relatively little reading material (ATTEXP1); come from a rural environment (ATT1); and come from families in which the adults in the household when the respondent was 14 were other than the respondent's natural mother and father (EXP2). The univariate results might be summed up as indicating that those interested in service in the armed forces are not primarily from the middle and upper middle classes and are probably intellectually less able on average than those who do not express interest in serving. Not surprisingly, this conclusion is stronger for the two more restrictive measures, both of which define interest in terms of a positive response to the expectation of serving question. Even by the ATT1 measure, however, the interested group includes relatively fewer children of professionals and managers - suggesting that upper and middle class youth are less likely to approve even the concept of service by young people.

A more interesting examination of these characteristics involves multivariate analysis which takes into account relationships among the background and/or personal variables in relating them to group membership. For this purpose, we use discriminant analysis. The object is to discover the extent to which the variables listed on Table 2-4, taken together, distinguish between those interested and those not interested in military service by each of the three interest measures. Tests were run on the background variables alone, the personal characteristics alone, and on a

selected combination of the two groups of variables.<sup>3</sup> We examine the background variables separately from the personal characteristics as a first step because we believe that the set of background variables is completely exogenous. Several of the personal characteristics are arguably determined simultaneously with, or even result from, an individual's plan to join the military. For example, deciding that one will definitely join the military may influence one's educational aspiration, or the particular high school program one decides to pursue. We do not believe that the personal characteristics variables are importantly determined by plans to join the military, but some influence probably exists. Thus care must be taken in interpreting the association between the personal characteristics and interest in military service.

Table 2-5 presents results of the discriminant analyses. Coefficients listed are standardized coefficients (i.e., the coefficients that obtain when the raw data are converted into standardized form with each variable adjusted to a mean of zero and standard deviation of one). Thus, the sizes of the coefficients can be used to judge their relative contribution to the discriminant function. The centroids are mean discriminant scores for each group. The canonical correlation coefficient is a measure of association relating the groups to the discriminant function. Its range is zero to one; larger values represent greater association. It is analogous to a Pearson correlation coefficient. Lambda is a measure of discrimination

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3. The combination of personal and background variables was selected using a stepwise procedure, with minimizing Wilks lambda as the selection criterion. This procedure is equivalent to maximizing the overall multivariate F ratio for differences among groups.

TABLE 2-5  
DISCRIMINANT FUNCTIONS RELATING SELECTED  
BACKGROUND AND PERSONAL CHARACTERISTICS OF WHITE MALES 14-17  
TO INTEREST IN JOINING THE ARMED FORCES<sup>a,b,c,d</sup>

Variable	Measures of Interest								
	Background Variables Only			Personal Variables Only			Selected Background and Personal Variables		
	ATT1	ATTEXP1	EXP2	ATT1	ATTEXP1	EXP2	ATT1	ATTEXP1	EXP2
EDPAR	.21	.27	-.59						-.37
FAM14	.10	.06	-.27						-.20
OCCBLUE	.03	-.21	-.79						
OCCFARM	-.06	.05	-.30						
OCCMILI	-.04	-.19	-.21						
OCCPROF	-.82	.54	-.88				-.55	-.46	
OCCSALE	-.08	-.08	-.17						.35
READING	-.16	.16	.23						.22
SIBLINGS	-.02	-.09	-.04						
SOUTH14	-.05	-.04	.20						
URBAN14	.55	-.02	-.14				.47		
USBORN	.09	.06	-.14						
WORKMON	.16	-.22	-.11						.23
EDLIKE				.46	-.38	.17		-.26	
EDNOW				.25	-.08	.64	-.24		-.59
EDPROG				.18	-.49	-.03		-.41	
HEALTH				.29	-.23	.30	-.29	-.22	-.24
KONW				-.24	-.37	.49		-.31	-.42
ROTSKALE				.39	.09	-.20	-.31		
WORKING				-.54	-.06	-.01	.45		
Centroid- interested	.06	-.24	.47	-.05	.27	-.50	.07	.31	.60
Centroid- not interested	-.13	.09	-.04	.12	-.10	.04	-.16	-.11	-.05
Canonical correlation	.08	.14	.13	.08	.16	.14	.11	.18	.17
Wilks' lambda	.99	.98***	.98***	.99	.97***	.98***	.99***	.97***	.97***

<sup>a</sup>Functions computed using weighted data.

<sup>b</sup>Measures of interest are explained in Appendix 2-A.

<sup>c</sup>Variables are explained in Appendix 2-B.

<sup>d</sup>Chi-square test - \*\*\*significant at .01.

prior to the derivation of the discriminant function. It is an inverse measure, so that a value of lambda near zero means that group centroids are quite separated relative to dispersion within the groups. On the other hand, a value of lambda equal to one means no group differences exist on the variables selected. Lambda is converted to chi-square which is tested for statistical significance. A significant value for chi-square suggests that the samples were drawn from a population having differences between the groups. It also means that the discriminant function is statistically significant.

When ATT1 is used to define the interested group, we find that neither the set of background variables, nor the set of personal characteristics discriminates between the groups. The selected combination does discriminate statistically, but the substantive importance of the function is very small, as indicated by the small canonical coefficient and the lambda, which approaches one. In essence, those who are interested in military service, in the sense of having a favorable attitude toward the concept of service for young people, appear to be quite similar to those who are not interested. The suggestion above, based on the univariate comparison, that those expressing favorable attitudes were from lower socio-economic backgrounds than those who expressed negative attitudes toward service is revealed to be tenuous in a multivariate context.

When the restrictive criterion, EXP2, is used to define the interested group, however, the picture changes somewhat. The background variables do provide statistically significant discrimination between the groups. Key contributions are made by variables reflecting parental education and occupation. Children of professionals and managers are less likely to be



interested, and parental education is inversely related to interest. Note also that, given other factors, children of blue collar workers are less likely to be in the interested group. While significant, however, the statistical association between the groups and the discriminating variables is not strong, as is revealed by the canonical correlation coefficient. When the personal characteristics are examined, the results are similar but slightly stronger. Major contributions are made by variables representing whether an individual is a dropout or is currently in school, and score on the KOWW scale. Those interested in serving are likely to score lower on the KOWW scale and are more likely to be dropouts. In sum, the multivariate results tend to support the univariate result for EXP2, suggesting that those who say they definitely expect to serve are from lower socioeconomic backgrounds.

The strongest result is found for the ATTEXP1 measure. The background variables again distinguish the two groups, with key contributions made by parental education and by parental occupation. If the adult female in the home worked for pay when the respondent was 14, interest in the military is also more likely. The personal characteristics variables also discriminate significantly. A key contribution is made by the KOWW scale again, but not, in this equation, the variable reflecting school dropout status. In this equation, high educational aspirations tend to place an individual in the non-interested group, as does the variable reflecting an academic, college-bound high school program instead of a general or vocational/commercial one. Again, the multivariate results tend to confirm the univariate results regarding characteristics of those who serve.

In short, the discriminant analyses lend support to the univariate analysis and to the conventional wisdom that those with strong intentions to serve are not primarily from the middle and upper middle classes--the children of professionals and managers, many of whom have high educational aspirations and achievements. On the other hand, not too much should be made of these results. The degree of association is in no case strong, and when we look at those with a favorable attitude toward service in comparison with those having an unfavorable attitude, we find almost no basis for distinguishing the groups.

As a second step in the analysis, we perform the same discriminant analysis by age group using the ATTEXP1 interest measure to define the interested group. Again a discriminant function was derived for the background variables, and a separate function was derived for the personal characteristics. A third set of analyses was performed using a selected combination of the two groups of variables. Results of these age group analyses are presented in Table 2-6. The hypothesis for this part of the analysis is that the variables will distinguish more sharply between the groups as age increases. The hypothesis is confirmed. At 14, the background function is not significant, and the personal characteristics function is also insignificant. The function combining the two sets of variables is significant, but the degree of association is small. Similar results hold for 15 year olds. Neither the background nor the personal characteristics functions significantly discriminate between the groups. The combination function is significant but not strong. At age 16 however, the background function is significant, although barely so. The most important discriminating variable is parental education. The personal characteristics function

TABLE 2-6  
DISCRIMINANT FUNCTION RELATING SELECTED BACKGROUND  
AND PERSONAL CHARACTERISTICS OF WHITE MALES 14-17  
TO INTEREST IN JOINING THE ARMED FORCES, NY AGRA, B, C, D

Variable	AGE											
	Background Variables Only				Personal Variables Only				Selected Background and Personal Variables			
	14	15	16	17	14	15	16	17	14	15	16	17
EDPAR	.04	-.12	.41	-.28								
FAM14	-.45	.26	.20	.74								
OCCBLUE	.46	.27	-.24	1.11					.43		.35	
OCCFARM	.38	.04	-.01	.47								
OCCMIL1	-.28	-.01	-.01	.09					-.26			
OCCPROF	.79	.79	.27	.61					.40			
OCCSALE	.43	.18	-.17	.82					-.38		.41	.35
READING	.26	-.09	-.28	-.52								
SIBLINGS	-.15	-.11	-.30	-.31								
SOUTH14	-.03	-.55	.16	-.14							-.35	.30
URBAN14	-.27	.25	-.16	-.10					.30			.35
USBORN	.28	.42	-.17	.17					-.26			
WORKING	-.29	-.18	-.21	-.14					-.35			-.24
EDLIKE					-.54	.10	-.46	-.60	-.38		-.33	.52
EDNOW					-.08	-.47	-.11	-.02				
EDPROG					-.29	-.53	-.59	-.18			-.32	
HEALTH					-.45	-.20	-.31	-.03	-.35		-.22	.62
KONR					-.24	-.55	.19	-.36			-.23	
ROTSKALE					.30	-.37	.05	.21			-.40	.26
WORKING					-.12	-.02	.03	.25			-.30	
Centroid-Interested	-.31	-.25	-.39	.50	.23	.23	.34	.41	.32	.33	-.41	-.51
Centroid-not interested	.14	.11	.13	-.13	-.11	-.10	-.11	-.11	-.15	-.14	.13	.13
Canonical Correlation	.21	.17	.22	.26	.16	.15	.19	.21	.22	.22	.23	.26
Wilks' Lambda	.96	.97	.95*	.93***	.97	.98	.96**	.96***	.95**	.95**	.95***	.93***

\*Interest measured by ATTEP1. See Appendix 2-A for definition.  
b Functions computed using weighted data.

c Variables are explained in Appendix 2-B.

\*Chi-square test - \*\*\*significant at .01.

\*\*significant at .05.

\*significant at .10.

is also significant. In the combined function, educational aspirations is the most important discriminator. Those interested in the military aspire to less education than their counterparts. They are also less likely to be children of professionals and managers and likely to come from homes with relatively little reading material available.

In sum, there is little difference among 14 and 15 year olds between those who express interest in serving and those who do not. As the individuals get older, however, the upper middle class youth appear to become less interested.

#### 4. Negative Expressions of Interest - Whites

Another perspective regarding interest in service in the armed forces can be gained by examining the group who have a negative attitude toward service, having answered the survey with the response that it is probably not or definitely not a good thing for a young person to serve in the military. A substantial minority in this group probably or definitely expects to serve. See Table 2-7. It can be argued that this group includes individuals who view the military as the best of an array of poor alternatives. We would expect such a group to be drawn from "poorer" backgrounds than those who have favorable attitudes and expect to join, and also from poorer backgrounds than those who do not expect to join. However, discriminant analysis using the same background and personal characteristics variables described above (not shown) reveals little difference between those who expect to serve, regardless of attitude toward service. The discriminating variables distinguish only those who expect to serve from those who do not expect to serve.

TABLE 2-7  
ATTITUDES AND EXPECTATIONS OF MILITARY SERVICE  
OF WHITE MALES 14-17<sup>a,b</sup>

<u>Age</u>	<u>Negative Attitude % Expect to Serve</u>	<u>Expect to Serve % Negative Attitude</u>	<u>Positive Attitude % Do not Expect to Serve</u>
14	17.1% (15)	12.9% (15)	50.5% (102)
15	18.4% (26)	14.8% (26)	49.8% (147)
16	10.9% (16)	11.5% (16)	60.2% (183)
17	12.4% (11)	10.9% (11)	69.2% (195)
All Ages	14.6% (68)	12.8% (68)	57.9% (627)
Sample Size	468	532	1083

<sup>a</sup>Percentages computed using unweighted data.

<sup>b</sup>Sample sizes in parentheses.

Another expectation regarding this group of potential recruits with negative attitudes is that the number in each age group will shrink as those individuals approach the age at which they actually could join. The attitudes of those who actually decide to serve may improve, and those whose attitudes do not improve are less likely to serve when their decision point arrives. The data bear out the expectation. Among those with negative attitudes, a smaller proportion of the older age groups expect to serve (Table 2-7, Col. 1). Whether attitudes change or those with negative attitudes tend to decide against service can only be determined using later waves of the panel, when analysis can be longitudinal.

What might be called the other side of the coin is the group including those individuals who have a positive attitude toward the concept of service for young people, but do not themselves expect to serve (Table 2-7, Col. 3). Nearly 58 percent of those with positive attitudes do not expect to serve. Among 17 year olds, this figure is almost 70 percent. Most of the 14-17 year olds state that they probably will not serve (42.5 percent), rather than that they definitely will not serve (15.4 percent). Even among the 17 year olds alone, relatively few state that they definitely will not serve (22 percent). The task of the recruiting commands is inevitably focussed on this group of 14-17 year olds. These are individuals who believe that military service is a good idea for young people in their age cohort, but believe that they themselves probably (but not definitely) have more desirable alternatives. They make up one third to one half of each age group, and our discriminant analysis suggests that they are desirable recruits.

## 5. Predictors of Military Service - Whites

The indicators of interest in service establish that a number of young men want and expect to serve. It would be useful to know which indicator best predicts who will in fact subsequently join the service. The definitive test of the best predictor is actual enlistments, which will be available in subsequent waves of the panel. A first step may be taken by assuming that the socioeconomic characteristics of those most likely to join are similar to the characteristics of those who are currently serving. Accordingly, discriminant analysis was used to compare those serving with those interested, as defined in turn by each of the eight interest measures. Results are outlined on Table 2-8. Discriminating variables were the background variables, as defined in Appendix 2-B, plus the Rotter Scale score and the health rating variable. Other personal characteristics cannot be examined in this framework because of the systematic difference in age between the two groups. The best predictor of subsequent service would be the interest measure that defines a group which is least different from those now serving.

The discriminant function in all eight cases is significant at .05 or better. Thus, there is no interest measure which defines a group which is not different on the variables tested from those actually serving. Most of the functions reveal only small, although significant differences between the test groups, however. The canonical correlation coefficients are small in every case. The group measure which defines a group most like those serving is the most general measure (ATT1). This is not surprising since the interested group as defined by ATT1 encompasses a large proportion of young men 14-17. The group is a very diverse one. EXP1 and ATTEXP1,

TABLE 2-8  
DISCRIMINANT FUNCTIONS COMPARING WHITE MALES 18-22  
SERVING IN THE ARMED FORCES  
WITH WHITE MALES 14-17 INTERESTED IN SERVING<sup>a, b, c</sup>

<u>Interest Measure</u>	<u>Canonical Correlation</u>	<u>Wilks' Lambda</u>	<u>Most Important Discriminators</u>
ATT1	.19	.96***	OCCMILI, SIBLINGS, READING, ROTSCALE
EXP1	.24	.94***	ROTSKALE, SIBLINGS, READING, OCCMILI
ATTEXP1	.26	.94***	ROTSKALE, READING, SIBLINGS, OCCMILI
ATT2	.31	.91***	OCCMILI, READING, ROTSCALE, SIBLINGS
ATTEXP2	.35	.88***	ROTSKALE, OCCMILI, READING, SIBLINGS
EXP2	.35	.88***	ROTSKALE, OCCMILI, SIBLINGS, OCCBLUE
ATTEXP3	.35	.88***	ROTSKALE, OCCBLUE, OCCMILI, SIBLINGS
ATTEXP4	.37	.86***	EDPAR, OCCMILI, SIBLINGS, ROTSCALE

<sup>a</sup>Functions computed using weighted data.

<sup>b</sup>Interest measures are explained in Appendix 2-A.

<sup>c</sup>Chi-square test - \*\*\*significant at .01.



which define interest far more restrictively, so that the interested group is less than one half the size of that for ATT1, have correlation coefficients which are only about 25 percent larger. They are clearly better predictors of ultimate service, if the assumption that those who will serve are similar to those who now serve is correct. There is little to choose among the four most restrictive measures with respect to correlation coefficients. Still the measures differ as predictors. The most restrictive criterion (ATTEXP4) defines a group which is statistically most strongly differentiated from those serving. However, it is by far the smallest group, and the correlation coefficient for that comparison is not much larger than the correlation coefficient for more broadly defined groups. In fact, judging by differences in group size together with differences in correlation coefficients, the most restrictive measure (ATTEXP4) is probably the best predictor. However, the search for a measure which defines a group not different from those now serving must be judged unsuccessful at this time.

The analyses do reveal some variables which consistently distinguish those serving from those interested in serving. Three discriminating variables are among the most important four variables (using the standardized coefficient as a criterion of importance) for all eight interest measures: parental occupation in the military, Rotter scale score and number of siblings. The availability of reading material in the home when the respondent was 14 was among the most important four variables for the five broader measure of interest; parental blue collar occupation, and parental education for the more restrictive measures of interest. Those

who currently serve in the military in comparison to those who express interest in serving are more likely to be from military families, are likely to have more siblings, are likely to have a lower Rotter score, are likely to come from homes in which relatively large amounts of reading material was available, and are likely to be children of better educated parents. They are also more likely to be from blue collar families.

Some of the significant variables--parental education, availability of reading material, Rotter score--suggest that those who serve come from a more middle class background than those who express interest in serving. Other variables do not fit particularly well with this interpretation, however. Further, particular care must be taken in interpreting at least two of these variables. The Rotter scale score is subject to ambiguous interpretation because the score may change as a result of military service, rather than distinguishing those who say they will enlist from those who actually do so. The score may also change with age. The Rotter score of those in the service is not significantly different from the Rotter score for those of the same age who are not in the service. Number of siblings, too, may be subject to several interpretations. It may mean that children from larger families are the ones who tend finally to opt for military service, while those from smaller families who seem to be strongly interested tend not, finally, to join, perhaps because of parental pressures to stay at home. However, there are other possible explanations of the result. Since different age groups are being compared here, we should note that the parents of high school age children will in many cases have more children subsequently, while parents of 20 year olds rarely will. Further, the cohorts may be differentially affected by the

sharp drop in birth rates in the late 60's and early 70's. Number of siblings is not an important variable for distinguishing those interested among the 14-17 year olds from those who are not interested.

The fact that sons of parents in the military are more likely to serve than their contemporaries of the same age group is not surprising. It would doubtless be the same in most occupations. However, it is somewhat surprising that parents in the military is a variable distinguishing those who serve from those who express interest in serving. It is also to be noted that this variable does not distinguish between those in the 14-17 group who are not interested from those who are. Either military children have become disenchanted with joining the service themselves in recent years, or, when work decisions are actually made, many military children in fact decide to join the service although they had earlier expressed interest in alternatives. Again, a more definitive test can be made with later waves of the panel.

#### 6. Losses of Those Who Express Interest in Serving - Whites

In the previous pages we have noted that inferences can be made regarding those who express interest and may later decide not to join the armed services. A further cross section test of the same issue can be made by comparing, across age groups, those who express positive interest.<sup>4</sup> The object is to determine whether those who are 14 and 15 who express interest in the service have different socioeconomic characteristics from those who are 16 and 17. Our previous analysis suggests that there are differences. The middle and upper middle class youths are those who tend to lose interest as they get older.

4. No Table has been included to summarize these results.

The results of the cross-age-group comparison on the background variables tend to support previous conclusions. Those in the older (16-17) group who express interest in serving tend to be children of blue collar, clerical, sales or farm parents rather than of professionals or managers. They also tend to have somewhat less well educated parents. However, the canonical correlation coefficient is small and the discriminating power of the function is significant only at .07. The results of the personal characteristics analysis are stronger. The older group has a higher KOWW score, and a lower Rotter score. The older group also includes larger numbers of people with jobs and more school dropouts. The educational aspirations of the older group are somewhat lower. Interpretation of these results is difficult. The KOWW score is probably age related as we noted previously, and the Rotter score may also be age related. Thus neither of these variables provides convincing evidence of improving quality of those interested in the service as age increases. On the other hand, these variables do not suggest deterioration in quality either. The fact that the older group contains larger numbers of people with jobs and more school dropouts is also largely a function of age. The educational aspirations variable alone among those mentioned is supportive of the previous results. Its importance suggests that it is those whose plans to go to college have become firmer who cease to express interest in serving.

#### 7. Expressions of Interest - Blacks

Tables 2-9 and 2-10 show expressions of interest on the part of blacks by age and by grade of school attending. The patterns of interest revealed

TABLE 2-9  
EXPRESSIONS OF INTEREST IN MILITARY SERVICE  
BY BLACK MALES 14-17, BY AGE<sup>a,b,c,d</sup>

Measures of Interest	All Ages	Age				Significance of $\chi^2$
		14	15	16	17	
ATT1	64.3% (493)	59.9% (147)	57.7% (224)	65.1% (192)	73.8% (205)	.01
EXP1	44.1% (339)	47.6% ( 70)	41.4% ( 93)	47.9% ( 92)	41.1% ( 84)	-
ATTEXP1	36.2% (278)	36.7% ( 54)	31.4% ( 70)	41.2% ( 79)	36.4% ( 75)	-
ATT2	17.6% (135)	23.5% ( 34)	19.0% ( 43)	13.5% ( 26)	15.7% ( 32)	.1
ATTEXP2	13.1% (101)	16.7% ( 25)	15.3% ( 34)	10.0% ( 19)	11.1% ( 23)	-
EXP2	10.9% ( 84)	11.0% ( 16)	9.5% ( 21)	10.2% ( 19)	12.9% ( 27)	-
ATTEXP3	9.6% ( 73)	8.1% ( 12)	8.6% ( 19)	9.1% ( 17)	12.1% ( 25)	-
ATTEXP4	4.7% ( 36)	5.0% ( 7)	4.9% ( 11)	3.8% ( 7)	5.1% ( 11)	-

<sup>a</sup>Percentages computed using weighted data.

<sup>b</sup>Sample sizes in parentheses. Sample sizes reflect weighted data rounded to whole numbers.

<sup>c</sup>Measures of interest are explained in Appendix 2-A.

<sup>d</sup>Chi-square test is for difference in distribution of positive interest in military service across age groups.

TABLE 2-10  
EXPRESSIONS OF INTEREST IN MILITARY SERVICE  
BY BLACK MALES 14-18  
BY GRADE OF SCHOOL ATTENDING<sup>a,b,c,d</sup>

Measure of Interest	All Grades	Grade Attending					Significance of $\chi^2$
		<u>≤8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	
ATT1	64.3% (526)	57.1% ( 51)	60.0% (139)	65.2% (118)	65.7% (120)	73.3% ( 98)	.1
EXP1	43.7% (358)	55.6% ( 49)	44.8% (104)	44.7% ( 81)	43.3% ( 79)	32.9% ( 44)	.05
ATTEXP1	35.8% (293)	45.2% ( 40)	34.1% ( 79)	37.4% ( 68)	35.3% ( 65)	31.1% ( 42)	-
ATT2	18.2% (149)	24.1% ( 21)	18.7% ( 43)	17.8% ( 32)	13.8% ( 25)	20.1% ( 27)	-
ATTEXP2	13.5% (111)	21.9% ( 19)	13.7% ( 32)	13.0% ( 24)	10.0% ( 18)	13.1% ( 18)	-
EXP2	11.1% ( 91)	12.1% ( 11)	10.3% ( 24)	11.1% ( 20)	9.6% ( 18)	13.8% ( 19)	-
ATTEXP3	9.8% ( 80)	9.4% ( 8)	8.9% ( 21)	10.0% ( 18)	8.1% ( 15)	13.8% ( 19)	-
ATTEXP4	5.2% ( 42)	6.3% ( 6)	5.0% ( 12)	6.5% ( 12)	2.7% ( 5)	6.4% ( 9)	-

<sup>a</sup>Percentages computed using weighted data.

<sup>b</sup>Sample sizes in parentheses. Sample sizes reflected weighting.

<sup>c</sup>Measures of interest are explained in Appendix 2-A.

<sup>d</sup>Chi-square test is for differences in distribution of positive interest in military service across school groups.

differ quite sharply from those of whites. By both age and grade there is the same rising approval of the concept of service by young men (ATT1) as is shown for whites on Table 2-1. However, for blacks there is much less evidence of declining expectation of actually serving as age and grade increases. The restrictive measures of interest suggest, if anything, that interest in serving may increase from the 11th to the 12th grade and from ages 16 to 17. None of the differences found is statistically different given sample size, however. Table 2-11 presents results for school dropouts. Like the results for whites (Table 2-3), these show greater than average interest in military service on the part of dropouts.

Table 2-12 shows results of a comparison of mean numbers of blacks and whites expressing interest in military service by age by each of the eight interest measures. The t values presented show the significance of differences in means. By three of the measures, blacks in total show more interest in service than do whites (Col. 1). The differences apparently derive from differences between the 17 year old groups (Col. 5). By one measure, which is concerned only with attitudes toward the idea of service (ATT1), whites show significantly more interest than do blacks. The other measure concerned only with attitudes (ATT2) reveals no significant difference between blacks and whites for the combined 14-17 age group. For the two measures which emphasize positive responses to the question regarding expectations of service (EXP1 and EXP2), the blacks show significantly more interest than do the whites. In short, black attitudes toward service are no more positive, perhaps less positive, than those of whites, but proportionally more blacks expect in fact to serve. We can

**TABLE 2-11**  
**EXPRESSIONS OF INTEREST IN MILITARY SERVICE**  
**BY BLACK MALE SCHOOL DROPOUTS,**  
**BY AGE AND GRADE OF SCHOOL COMPLETED<sup>a,b,c</sup>**

<u>Measure of Interest</u>	<u>Age</u>			<u>All Grades</u>	<u>Grade Completed</u>			
	<u>Ages 14-17</u>	<u>16</u>	<u>17</u>		<u>≤8</u>	<u>9</u>	<u>10</u>	<u>11</u>
ATT1	76% (38)	93% (14)	75% (24)	72% (71)	67% (20)	79% (19)	77% (20)	56% ( 9)
EXP1	46% (23)	60% ( 9)	38% (12)	47% (46)	57% (17)	50% (12)	38% (10)	44% ( 7)
ATTEXP1	42% (21)	60% ( 9)	38% (12)	42% (41)	47% (14)	50% (12)	38% (10)	31% ( 5)
ATT2	22% (11)	27% ( 4)	22% ( 7)	26% (25)	23% ( 7)	33% ( 8)	27% ( 7)	19% ( 3)
ATTEXP2	14% ( 7)	20% ( 3)	13% ( 4)	18% (17)	20% ( 6)	29% ( 7)	4% ( 1)	13% ( 2)
EXP2	20% (10)	27% ( 4)	16% ( 5)	16% (16)	13% ( 4)	29% ( 7)	8% ( 2)	13% ( 2)
ATTEXP3	18% ( 9)	27% ( 4)	16% ( 5)	15% (15)	10% ( 3)	29% ( 7)	8% ( 2)	13% ( 2)
ATTEXP4	6% ( 3)	7% ( 1)	6% ( 2)	9% ( 9)	7% ( 2)	17% ( 4)	4% ( 1)	13% ( 2)

<sup>a</sup>Percentages computed using weighted data.

<sup>b</sup>Sample sizes in parentheses. Sample sizes reflect weighted data.

<sup>c</sup>Measures of interest are explained in Appendix 2-A.



TABLE 2-12  
COMPARISON OF EXPRESSIONS OF INTEREST IN MILITARY SERVICE  
BY BLACK VS. WHITE MALES 14-17<sup>a,b,c</sup>

Measure of Interest	All Ages		14		15		16		17	
	White	Black	White	Black	White	Black	White	Black	White	Black
ATT1	68.6%	64.3%*	67.8%	59.8%	67.1%	59.1%*	65.9%	64.8%	72.4%	72.4%
EXP1	31.1%	44.1%***	38.9%	51.3%*	40.0%	42.7%	30.2%	47.1%***	25.8%	43.8%***
ATTEXP1	26.9%	36.2%***	33.6%	38.5%	33.6%	32.3%	26.3%	41.4%***	22.2%	38.7%***
ATT2	16.4%	17.6%	17.5%	25.6%*	16.4%	19.1%	19.5%	14.3%*	14.8%	16.6%
ATTEXP2	11.1%	13.1%	12.4%	18.0%	12.3%	15.0%	13.5%	10.5%	10.0%	12.0%
EXP2	7.7%	10.9%*	9.4%	14.5%	10.5%	10.0%	10.0%	11.9%	5.4%	13.8%***
ATTEXP3	7.2%	9.6%	8.4%	11.1%	9.8%	9.1%	9.1%	11.0%	5.4%	12.9%***
ATTEXP4	4.8%	4.7%	4.4%	6.8%	6.8%	5.0%	6.7%	4.8%	3.1%	6.0%

<sup>a</sup>Measures of interest are explained in Appendix 2-A.

<sup>b</sup>For all ages combined, percentages computed using weighted data. For individual age groups, percentages computed using unweighted data.

<sup>c</sup>Two-tail t test - \*\*\*percentage of blacks interested in military service significantly different from percentage of whites interested at .01.

\*\*difference is significant at .05.

\*difference is significant at .1.

speculate that these results follow from black perceptions of lack of opportunity for teenagers in the civilian labor market.

#### 8. Characteristics of Youth Interested in Joining the Military - Blacks

Table 2-13 contains mean values for each of the background and personal characteristics variables for the interested and for the non-interested groups as defined by three measures: ATT1, ATTEXP1, and EXP2. It presents results of univariate tests of differences in means. For the broad measure (ATT1), the interested blacks seem to be of the same or higher "quality" than those who express no interest in serving. They are more likely to come from backgrounds where there was reading material available at home and to score higher on average on the KOWW test. There is no statistically significant difference between the two groups on other variables that might be interpreted as quality measures, but it is worth noting that the sign of the difference on almost all of them--educational aspirations, type of high school program, parental education and occupation--suggests that the interested group is, if anything, of higher quality.

For the ATTEXP1 measure, the results may be characterized as similar to those for whites (Table 2-4). Those interested are children of less well-educated parents, less likely to be children of professionals and managers, more likely to be children of blue collar workers, to have lower educational aspirations, to score lower on the KOWW scale and higher on the Rotter scale, and to have followed a non-college preparatory curriculum in high school.

For the narrowest measure (EXP2), few differences are significant. Those interested have somewhat lower educational aspirations and are more

TABLE 2-13  
MEAN VALUES OF SELECTED BACKGROUND AND PERSONAL CHARACTERISTICS  
OF BLACK MALES 14-17  
INTERESTED AND NOT INTERESTED IN JOINING THE ARMED FORCES<sup>a,b,c,d,e</sup>

Background Characteristics	Measure of Interest					
	ATT1		ATTEXP1		EXP2	
	interested	not interested	interested	not interested	interested	not interested
EDPAR	11.69	11.48	11.21	11.84***	11.22	11.66
FAM14	.51	.41	.48	.51	.40	.51*
OCCBLUE	.62	.60	.67	.57**	.60	.61
OCCFARM	.01	.00	.01	.01	0	.01
OCCMILI	.02	.01	.02	.01	.01	.02
OCCPROF	.08	.05	.04	.09**	.05	.08
OCCSALE	.08	.10	.06	.10	.08	.09
READING	2.46	2.17***	2.34	2.37	2.35	2.36
SIBLINGS	4.36	4.59	4.56	4.38	4.81	4.40
SOUTH14	.60	.49***	.63	.52***	.61	.56
URBAN14	.15	.15	.15	.15	.13	.15
USBORN	1.02	1.00*	1.01	1.01	1.04	1.01**
WORKMOM	.59	.62	.58	.61	.52	.61
Sample Size	460	252	253	458	80	632
 <u>Personal Characteristics</u>						
EDLIKE	3.11	3.09	2.94	3.20***	2.91	3.13*
EDNOW	.92	.95	.93	.94	.87	.94**
EDPROG	.25	.24	.18	.28***	.18	.25
HEALTH	.04	.04	.04	.04	.03	.04
KOWN	4.46	4.18**	4.20	4.45*	4.39	4.36
ROTSKALE	9.11	8.92	9.35	8.87***	8.85	9.07
WORKING	.19	.18	.21	.18	.16	.19
Sample Size	484	268	269	484	79	673

<sup>a</sup>Means computed using weighted data.

<sup>b</sup>Sample sizes reflect weighted data.

<sup>c</sup>Measures of interest are explained in Appendix 2-A.

<sup>d</sup>Background and personal variables are explained in Appendix 2-B.

<sup>e</sup>Two-tail t test - \*\*\*difference in mean value for those interested in military service as compared to those not interested is significant at .01.

\*\*difference is significant at .05.

\*difference is significant at .1.

likely to be school dropouts. They are less likely to be from families headed by their natural parents. Otherwise, the variables reported above as distinguishing interested whites from those whites who are not interested are not significant for blacks. The picture that emerges, then, is somewhat less clear than that for whites. Those with positive attitudes toward service are of equal or higher quality on the variables measured than those with negative attitudes. Those blacks whose interest extends to expectation of actual service are of somewhat lower quality than those who do not expect to serve. However, many of the univariate differences, important in distinguishing among whites, are not significant here.

Two further differences between the black and the white results are also notable. First, by two of the measures, a significantly greater proportion of blacks from the South are interested in serving as compared to those from the non-South. No such geographical differences exist for whites. Second, in comparison to non-interested blacks, a large proportion of the interested blacks are foreign born by the ATT1 and EXP2 measures.

Table 2-14 shows results of discriminant analyses for blacks using the background variables, the personal characteristics, and selected combinations of the two groups of variables. These results are comparable to those for whites shown on Table 2-5. As was found for whites, the ability of the variables to discriminate is relatively small, although, for the combination functions, highly significant. By the ATT1 measure, the most important discriminator is the variable reflecting being from the South. Those interested are more likely to be Southerners. This variable is also among the important discriminators for the narrower two measures. By the

TABLE 2-14  
DISCRIMINANT FUNCTIONS RELATING SELECTED  
BACKGROUND AND PERSONAL CHARACTERISTICS OF BLACK MALES 14-17  
TO INTEREST IN JOINING THE ARMED FORCES<sup>a,b,c,d</sup>

Variable	Measures of Interest								
	Background Variables Only			Personal Variables Only			Selected Background and Personal Variables		
	ATT1	ATTEXP1	EXP2	ATT1	ATTEXP1	EXP2	ATT1	ATTEXP1	EXP2
EDPAR	.00	-.53	.31					-.30	
FAM14	-.02	-.31	.52					-.28	-.36
OCCBLUE	.42	.56	-.17				-.22	.41	
OCCFARM	.27	.04	.14				-.22		
OCCMILI	.30	.31	.04				-.25	.23	
OCCPROF	.37	-.02	-.02				-.29		
OCCSALE	-.10	.01	-.06						
READING	.59	.28	-.18				-.52	.37	
SIBLINGS	-.13	-.02	-.18						
SOUTH14	.73	.54	-.37				-.70	.41	.37
URBAN14	-.06	-.15	.12						-.27
USBORN	.33	.12	-.63				-.35		.58
WORKMOM	-.44	-.29	.38				.33	-.19	-.33
EDLIKE				.03	.52	-.42		-.27	-.25
EDNOW				.44	-.05	-.64	.20		-.47
EDPROG				.03	.40	-.37		-.25	
HEALTH				.02	.02	-.03			
KOWW				-.79	.05	.22	-.24		
ROTSKALE				-.53	-.49	-.34	-.29	.35	
WORKING				-.12	-.20	-.30			
Centroid-interested	.17	.27	-.43	-.08	-.21	.34	-.18	.30	.49
Centroid-not interested	-.31	-.15	.05	.14	.12	-.04	.32	-.17	-.06
Canonical correlation	.23	.20	.15	.11	.16	.12	.24	.22	.17
Wilks' lambda	.95***	.96***	.98	.99	.98***	.99	.94***	.95***	.97***

<sup>a</sup>Functions computed using weighted data.

<sup>b</sup>Measures of interest are explained in Appendix 2-A.

<sup>c</sup>Variables are explained in Appendix 2-B.

<sup>d</sup>Chi-square test - \*\*\*significant at .01.

ATT1 measure, the availability of reading material also relatively strongly distinguishes the two groups. The interested group is characterized by the availability of more reading material in the household as they are growing up.

By the ATTEXP1 measure, most of the variables noted above in the discussion of differences in means are again important. That more of the interested group are children of blue collar workers is the most important discriminating variable. However, two variables suggestive of the lower quality of the interested group in the univariate context--KOWW score and parental professional/managerial occupation--are not important in the discriminant equations. One variable, which does not differentiate the groups in the univariate context, is suggestive of higher quality of the interested group in the discriminant analysis--availability of reading material in the household.

For the EXP2 measure, it is worth noting that the discriminant functions for the background variables alone and the personal characteristics alone are not significant at the .1 level. In the combination function, which is significant, the key discriminator is that more of the interested group are foreign born. Among the quality indicators, educational aspirations and dropout status favor the not interested group, as these variables do in the univariate analysis discussed above.

One further contrast with the white results may be noted. The health variable, which makes a consistent contribution to the discriminant functions for whites, has virtually no discriminating power in the black functions. Whites with health problems claim less interest in military service than do whites without health problems, but the same does not appear to be true of blacks.

Overall, the discriminant analysis suggests first that young blacks who are interested in serving in the armed forces are not very different from those who are not interested when compared using a wide variety of socioeconomic and personal characteristics. This conclusion stands out above others. Second, when interest is defined in terms of a positive attitude toward the idea of service for young people (ATT1), the interested group is, if anything, of higher quality than the not interested group. This conclusion conforms to that drawn based on the comparison of means. Third, when interest is defined wholly or partly in terms of expectations of actual service, the interested group is probably of somewhat lower quality than the not interested group. However, the results for some variables are conflicting, and the evidence regarding this last point is even less clear than is true for the evidence from the comparison of means.

The same discriminating variables are tested across age groups using ATTEXP1 as the measure of interest. The results, on Table 2-15, may be compared to those of whites presented on Table 2-6. For whites, we noted that the variables discriminate better for age 16 or 17 than for age 14 or 15. We find no such comparable pattern for blacks. Both the background functions and the personal characteristics functions for each age group are, with two exceptions, insignificant at .1. The functions using selected combinations of background and personal characteristics are all significant but reveal little pattern. Key variables in these functions are mostly the same ones reported above--residence in the South, parental occupation, etc.

Table 2-16 shows proportions of blacks with negative attitudes who expect to serve and proportions with positive attitudes who do not expect

TABLE 2-15  
DISCRIMINANT FUNCTION RELATING SELECTED BACKGROUND AND PERSONAL CHARACTERISTICS  
OF BLACK MALES 14-17 TO INTEREST IN JOINING THE ARMED FORCES, BY AGE<sup>a, b, c, d</sup>

Variable	Age											
	Background Variables Only				Personal Variables Only				Selected Background and Personal Variables			
	14	15	16	17	14	15	16	17	14	15	16	17
EDPAR	-.21	.76	-.60	-.19								
FAM14	-.30	.44	.13	.32								
OCCBLUE	1.15	-.90	-.06	.07								
OCCFARM	-.07	-.56	-.37	.03								
OCCNLI	.21	-.39	.43	.15								
OCCPROF	.14	-.43	-.28	.31								
OCCSALE	.45	-.52	-.22	.34								
READING	-.23	-.44	-.03	-.59								
SIBLINGS	-.27	-.07	-.18	-.23								
SOUTH14	.32	.04	.30	-.78								
URBAN14	-.25	-.16	.07	.18								
USBORN	-.29	-.34	.08	.22								
WORKNON	-.51	.29	.08	.22								
EDLIKE												
EDNON					-.37	-.36	.55	.25				
EDPROG					.06	.47	.24	-.33	.33		-.28	
HEALTH					-.19	-.33	.13	.54	.24	.29		
KORN					-.06	-.57	-.13	-.10		-.32		
ROTSKALE					-.28	-.02	.30	-.38			-.27	
WORKING					.65	.24	-.18	-.78	-.56			-.48
Centroid-					.37	-.47	-.34	-.14	-.22	-.42		
Interested	.50	-.40	.38	-.42	.41	.29	-.26	-.20	-.65	.43	.37	-.42
Centroid-												
Not Interested	-.27	.18	-.26	.24	-.23	-.13	.18	.11	.34	-.18	-.26	.24
Canonical												
Correlation	.37	.27	.32	.32	.31	.19	.22	.15	.47	.28	.31	.32
Milks' Lambda	.86	.93	.90	.90 <sup>a</sup>	.91 <sup>a</sup>	.96	.95	.98	.78 <sup>***</sup>	.92 <sup>a</sup>	.91 <sup>***</sup>	.90 <sup>***</sup>

<sup>a</sup>Interest measured by ATTEP1. See Appendix 2-A for definition.

<sup>b</sup>Functions computed using weighted data.

<sup>c</sup>Variables are explained in Appendix 2-8.

<sup>d</sup>Chi-square test - \*\*\*significant at .01.  
\*\*significant at .1.



TABLE 2-16  
ATTITUDES AND EXPECTATIONS OF MILITARY SERVICE  
OF BLACK MALES 14-17<sup>a, b</sup>

<u>Age</u>	<u>Negative Attitude % Expect to Serve</u>	<u>Expect To Serve % Negative Attitude</u>	<u>Positive Attitude % Do Not Expect To Serve</u>
14	33.3% (15)	25.0% (15)	35.7% (25)
15	26.4% (23)	24.5% (23)	45.4% (59)
16	16.7% (12)	12.1% (12)	38.0% (49)
17	22.0% (11)	11.6% (11)	46.5% (73)
All Ages	24.0% (61)	17.5% (61)	41.8% (206)
Sample Size	254	348	493

<sup>a</sup>Percentages computed using unweighted data.

<sup>b</sup>Sample sizes in parentheses.

to serve. The comparable table for whites is Table 2-7. The results suggest that far more blacks than whites who believe that it is probably or definitely not a good idea for a young person to serve, still themselves expect to serve. Further, a larger percentage of blacks who believe that it is a good idea for a young person to serve expect to serve themselves. Such results further support the speculation that blacks perceive fewer educational and/or civilian labor market opportunities for teenagers than do whites. Among those who expect to serve, the improvement in attitude toward service as age increases exists for blacks as it does for whites.

#### 9. Predictors of Service - Blacks

The test to attempt to discover which of the eight measures of interest is the best predictor of subsequent service, performed for whites (see Section 5) was repeated for blacks (Table 2-17). As was true for whites, the discriminant function separating those who serve from those who are interested was significant in every case. No measure selects a group of those interested in serving which is closely comparable to those who actually serve. The variables which most clearly distinguish those interested, regardless of measure of interest, from those who actually serve, are the existence of reading material in the home when the respondent was growing up, and parental occupation in the military. The reading material variable, which was the most important factor in every case, suggests that those actually serving come from higher quality backgrounds than those who are interested in service in the future. This results in part from the fact that the military is selective. The least qualified among those who are interested in service will not pass the entrance

TABLE 2-17  
DISCRIMINANT FUNCTIONS COMPARING BLACK MALES 18-22  
SERVING IN THE ARMED FORCES  
WITH BLACK MALES 14-17 INTERESTED IN SERVING<sup>a,b,c</sup>

<u>Interest Measure</u>	<u>Canonical Correlation</u>	<u>Wilks' Lambda</u>	<u>Most Important Discriminators</u>
ATT1	.24	.94***	READING, OCCMILI, SIBLINGS, ROTSCALE
EXP1	.31	.90***	READING, OCCMILI, URBAN14, ROTSCALE
ATTEXP1	.32	.90***	READING, OCCMILI, ROTSCALE, URBAN14
ATT2	.41	.84***	READING, ROTSCALE, OCCMILI, URBAN14
ATTEXP2	.43	.82***	READING, ROTSCALE, URBAN14, OCCMILI
EXP2	.41	.84**	READING, OCCMILI, WORKMOM, URBAN14
ATTEXP3	.39	.85*	READING, OCCMILI, WORKMOM, USBORN
ATTEXP4	.46	.79**	READING, FAM14, OCCMILI, OCCPROF

<sup>a</sup>Functions computed using weighted data.

<sup>b</sup>Interest measures are explained in Appendix 2-A.

<sup>c</sup>Chi-square test - \*\*\*significant at .01.  
                           \*\*significant at .05.  
                           \*significant at .1.

requirements. It may also result in part because more able individuals, who while in high school perceive that they have interesting educational or civilian labor market opportunities, find with subsequent experience that the military is an attractive occupation.

The result for the military occupation variable is similar to that for the whites. Those in the military are more likely to have military parents than are those who express interest in the military.

Two other variables, the Rotter scale score and whether the individual grew up in an urban environment, are also among the four most important discriminators by most of the interest measures. Those currently serving in the military have a lower mean Rotter score, indicating greater feeling of internal control. This result is similar to the result for whites and must be treated with the same caution noted earlier in discussing the white results. The Rotter score may change with age or as a result of military service. Those currently serving are also more likely to be from rural or farm environments than from cities.

#### 10. Expressions of Interest - Hispanics

Table 2-18 shows expressions of interest in military service by Hispanic youths by age. As is true of the blacks, for measures emphasizing positive responses to expectations of actual service, Hispanics show more interest than do whites. On the other hand, for the two measures concerned only with responses to the attitude question (ATT1 and ATT2), there is no apparent difference between the Hispanics and the whites. The conclusion to be drawn is similar to that drawn for blacks. Hispanic attitudes are

TABLE 2-18  
EXPRESSIONS OF INTEREST IN MILITARY SERVICE  
BY HISPANIC MALES 14-17, BY AGE<sup>a,b,c,d</sup>

Measure of Interest	All Ages	Age			
		14	15	16	17
ATT1	65.8% (320)	56.3% ( 49)	65.1% ( 95)	71.6% ( 83)	67.9% ( 93)
EXP1	47.1% (229)	44.8% ( 39)	49.3% ( 72)	51.7% ( 60)	42.3% ( 58)
ATTEXP1	40.3% (196)	33.3% ( 29)	41.8% ( 61)	45.7% ( 53)	38.7% ( 53)
ATT2	16.5% ( 80)	10.3% ( 9)	15.1% ( 22)	21.6% ( 25)	17.5% ( 25)
ATTEXP2	13.8% ( 67)	8.0% ( 7)	14.4% ( 21)	16.4% ( 19)	14.6% ( 20)
EXP2	11.5% ( 56)	11.5% ( 10)	11.6% ( 17)	12.9% ( 15)	10.2% ( 14)
ATTEXP3	10.7% ( 52)	10.3% ( 9)	9.6% ( 14)	12.9% ( 15)	10.2% ( 14)
ATTEXP4	7.0% ( 34)	3.4% ( 3)	8.2% ( 12)	10.3% ( 12)	5.1% ( 7)

<sup>a</sup>Percentages computed using unweighted data.

<sup>b</sup>Sample sizes in parentheses. Sample sizes reflect unweighted data.

<sup>c</sup>Measures of interest are explained in Appendix 2-A.

<sup>d</sup>Chi-square tests for differences in distribution of positive interest in military service across age groups for each measure of interest revealed no differences significant at .1.

no more positive than are white attitudes, but a larger proportion of Hispanic youths in fact expect to serve.

There is no very clear pattern of interest by age among the Hispanics in this sample. Seventeen year olds are, by all measures, less interested than 16 year olds. That result conforms to that for whites. However, 17 year olds by most measures are more interested in military service than are 14 year olds. Further, by the chi-square test, none of the differences in interest by age for any of the measures is significant at .1.

11. Characteristics of Youth Interested in Joining the Military - Hispanics

Table 2-19 contains mean values for each of the background and personal characteristics variables for each of three interest measures--ATT1, ATTEXP1, and EXP2. It is equivalent to Table 2-4 for whites and 2-13 for blacks. Perhaps the most interesting finding from Table 2-19 is that by two of the measures (ATT1 and ATTEXP1), the interested Hispanics are significantly more likely to be foreign born. Using the EXP2 measure, which reflects a definite expectation of serving, the significance of the difference disappears. One may conclude that while those foreign born are more likely to have a favorable attitude toward military service, they are no more likely to actually expect to enlist.

For the broad measure of interest, ATT1, the "quality" indicators reveal little consistency. The interested Hispanics have a significantly lower Rotter scale score, which is an indicator of higher quality, but they are also significantly more likely to be school dropouts. Other variables that might be interpreted as quality measures--parental education, reading material available at home, type of school program, etc.--are not

TABLE 2-19  
MEAN VALUES OF SELECTED BACKGROUND AND PERSONAL CHARACTERISTICS  
OF HISPANIC MALES 14-17  
INTERESTED AND NOT INTERESTED IN JOINING THE ARMED FORCES<sup>a,b,c,d,e</sup>

Background Characteristics	Measure of Interest					
	ATT1		ATTEXP1		EXP2	
	interested	not interested	interested	not interested	interested	not interested
EDPAR	9.84	9.60	9.27	10.06*	9.14	9.84
FAM14	.64	.61	.59	.66	.55	.64
OCCBLUE	.60	.50*	.62	.53**	.58	.56
OCCFARM	.01	.01	.01	.01	0	.01
OCCMILI	.00	0	.00	0	0	.00
OCCPROF	.11	.17	.10	.15	.07	.14
OCCSALE	.07	.08	.06	.09	.06	.08
READING	2.22	2.37	2.10	2.39**	2.03	2.31
SIBLINGS	4.11	4.63*	4.27	4.30	4.03	4.32
SOUTH14	.28	.25	.27	.27	.26	.27
URBAN14	.09	.11	.11	.09	.08	.10
USBORN	1.27	1.14***	1.31	1.18***	1.29	1.22
WORKMOM	.45	.52	.44	.50	.30	.50***
Sample Size	295	155	173	277	52	398
 <u>Personal Characteristics</u>						
EDLIKE	3.09	3.04	2.89	3.20***	2.75	3.12***
EDNOW	.87	.93*	.84	.92***	.80	.90**
EDPROG	.20	.26	.15	.27***	.13	.23*
HEALTH	.03	.05	.02	.05**	0	.04
KOWW	4.57	4.76	4.28	4.87***	3.96	4.72***
ROTSKALE	9.23	9.73**	9.19	9.53	8.96	9.46
WORKING	.27	.29	.25	.29	.23	.28
Sample Size	321	164	192	293	57	429

<sup>a</sup> Means computed using weighted data.

<sup>b</sup> Sample sizes reflect weighted data.

<sup>c</sup> Measures of interest are explained in Appendix 2-A.

<sup>d</sup> Background and personal variables are explained in Appendix 2-B.

<sup>e</sup> Two-tail t test - \*\*\*difference in mean value for those interested in the military as compared to those not interested is significant at .01.

\*\*significant at .05.

\*significant at .1.

significant, nor does the sign of the differences between the groups reveal consistency.

For the ATTEXP1 measure, which combines favorable attitude with an expectation of actually serving, the interested Hispanics look to be of lower quality than their non-interested counterparts. Those interested in military service are from homes in which parents have less education, and where there was less reading material available. The interested youth have lower educational aspirations, scored lower on the KOWW test, are less likely to be taking an academic program in high school, and are more likely to be school dropouts. All of these variables are significant.

By the narrowest measure, EXP2, the interested Hispanic males also seem to be of somewhat lower quality on average than those not interested. Those in the interested group have lower educational aspirations, lower KOWW scores, are more likely to be dropouts, and are less likely to be taking an academic program in school.

Table 2-20 presents results of discriminant analyses for Hispanics using the same background and personal characteristics discussed above, and selected combinations of the two groups of variables. The table is comparable to Table 2-5 for whites and 2-14 for blacks. As is the case for both whites and blacks, the power of the functions to distinguish those interested in military service from those not interested is relatively small, but significant. By the ATT1 measure, the most important discriminator in the background variable equation and also in the combination equation is whether the respondent was foreign born. Those who express approval of service for young people are more likely to be foreign born. This variable is also an important discriminator in the equations using



TABLE 2-20  
DISCRIMINANT FUNCTIONS RELATING SELECTED  
BACKGROUND AND PERSONAL CHARACTERISTICS OF HISPANIC MALES 14-17  
TO INTEREST IN JOINING THE ARMED FORCES<sup>a,b,c,d</sup>

Variable	Measures of Interest								
	Background Variables Only			Personal Variables Only			Selected Background and Personal Variables		
	ATT1	ATTEXP1	EXP2	ATT1	ATTEXP1	EXP2	ATT1	ATTEXP1	EXP2
EDPAR	.36	-.17	-.05						
FAM14	.16	-.37	-.23					-.20	
OCCBLUE	.33	.54	.10				-.44	.33	
OCCFARM	.01	-.07	-.26						
OCCMILI	.10	.28	-.10					.17	
OCCPROF	-.23	.10	-.19						
OCCSALE	-.04	-.03	-.18						
READING	-.18	-.14	-.16						
SIBLINGS	-.41	-.15	-.38				.31		-.40
SOUTH14	.30	.20	.19				-.28		
URBAN14	-.09	.03	-.13						
USBORN	.63	.53	.20				-.46	.33	
WORKMOM	-.41	-.37	-.77				.43		-.46
EDLIKE				.43	-.18	-.21	-.34		-.27
EDNOW				-.55	-.44	-.44	.33	-.37	-.30
EDPROG				-.47	-.33	-.15	.30	-.29	
HEALTH				-.31	-.44	-.46		-.41	-.36
KOWW				-.29	-.42	-.49		-.30	-.54
ROTSKALE				-.62	-.41	-.46	.41	-.25	-.20
WORKING				-.22	-.28	-.27		-.30	
Centroid-interested	.17	.27	.49	.13	.33	.60	-.21	.39	.67
Centroid-not interested	-.33	-.17	-.06	-.25	-.22	-.08	.40	-.24	-.09
Canonical correlation	.24	.22	.18	.19	.27	.22	.29	.31	.25
Wilks' lambda	.94**	.95*	.97	.97**	.93***	.95***	.92***	.91***	.94***

<sup>a</sup>Functions computed using weighted data.

<sup>b</sup>Measures of interest are explained in Appendix 2-A.

<sup>c</sup>Variables are explained in Appendix 2-B.

<sup>d</sup>Chi-square test - \*\*\*significant at .01.

                  \*\*significant at .05.

                  \*significant at .1.

the ATTEXP1 measure, but ceases to be of importance in the EXP2 equations. Thus, the result conforms to the result of the univariate analysis mentioned above--the foreign born have a more favorable attitude, but are not any more likely than others to declare that they in fact expect to serve.

Two other variables warrant particular mention. The Rotter scale score is the most important discriminator in the ATT1 personal variables equation. It also has a substantial coefficient in the other two personal variable equations and is one of the selected variables in all three of the combination equations. The sign is consistent--those Hispanics interested in military service are likely to have a lower Rotter scale score, indicating a feeling of greater control over their environment. This finding, if anything, is the reverse of that for both blacks and whites, although signs are less consistent for those groups. The other variable which contributes strongly in all three personal variables equations and is among the selected variables in all three combination equations is current school status. Those Hispanics expressing interest in serving are much more likely to be dropouts.

Overall, the results of the discriminant analysis support the conclusion from the univariate analysis that those with favorable attitudes are not obviously of different quality from those with negative attitudes. They also tend to support the conclusion that those who actually expect to serve are of somewhat lower quality, although one variable, the Rotter scale score, suggests that the reverse is true.

Table 2-21 shows proportions of Hispanics with negative attitudes who expect to serve and proportions with positive attitudes who do not

TABLE 2-21  
ATTITUDES AND EXPECTATIONS OF MILITARY SERVICE  
OF HISPANIC MALES 14-17<sup>a,b</sup>

<u>Age</u>	<u>Negative Attitude % Expect To Serve</u>	<u>Expect to Serve % Negative Attitude</u>	<u>Positive Attitude % Do Not Expect to Serve</u>
14	26.5% ( 9)	23.1% ( 9)	40.8% (20)
15	20.8% (10)	13.9% (10)	35.8% (34)
16	18.8% ( 6)	10.0% ( 6)	36.1% (30)
17	13.9% ( 5)	8.6% ( 5)	41.9% (39)
All Ages	20.0% (30)	13.1% (30)	38.4% (123)

<sup>a</sup>Percentages computed using unweighted data.

<sup>b</sup>Sample sizes in parentheses.

expect to serve. The comparable tables for whites and blacks are 2-7 and 2-16. The Hispanic results are somewhat more similar to those of the blacks than to those of the whites. A larger proportion of Hispanics than whites expect to serve despite believing that it is probably or definitely not a good idea for young people to serve. However, an even larger percentage of blacks fit in that category. Among those who believe that service is a good idea, less than 40 percent of the Hispanics do not expect, themselves, to serve. That figure compares to nearly 60 percent for whites and 42 percent for blacks.

## 12. Summary and Conclusions

In this chapter we have discussed the characteristics of men 14-17, too young to serve in the military, who have expressed some interest in serving as compared to those in the same age cohort who express no such interest. Whites, blacks and Hispanics are examined separately. Interest in serving is defined by responses to two survey questions: the first asks about the respondent's attitude toward military service by young people; the second asks whether the respondent himself expects to serve. Eight combinations of responses to these questions are interpreted as grouping respondents by intensity of interest in serving.

We find that a significant core of young males of all three racial/ethnic groups express a fairly strong interest in serving, and that a far larger number at least express a favorable attitude toward the concept of military service.<sup>5</sup> It is interesting to note that black and Hispanic

5. By the ATTEXP1 measure, which requires favorable attitude toward the military and positive expectation of serving, 27 percent of the whites, 36 percent of the blacks and 40 percent of Hispanics express interest in serving. By the ATT1 measure, which requires a favorable attitude toward the idea of service for young people, 70 percent of the whites, 67 percent of the blacks, and 66 percent of the Hispanics respond positively.

attitudes toward the concept of service by young people are no more favorable than white attitudes, perhaps less so. However, significantly larger proportions of both the black and the Hispanic groups in fact expect to serve. The difference may reflect perceptions of lack of civilian labor market or educational opportunities for minority teens. This conclusion is reinforced by the fact that a larger proportion of both blacks and Hispanics with negative attitudes toward the idea of service by young people expect in fact to serve in the military than is true among whites.

Whites who express interest in serving appear to be from somewhat lower socioeconomic backgrounds than those who express little or no interest. Not too much should be made of this result, however, because there is considerable overlap between the interested and non-interested groups with respect to background and personal characteristics. Particularly, when interest in service is defined in terms of a favorable attitude toward the concept of service (ATT1), using a discriminant model, those interested are almost indistinguishable from those who are not interested. When interest in military service is defined wholly or partly in terms of expectation of actually serving (ATTEXP1 and EXP2), on the other hand, the relatively low socioeconomic background and characteristics of those interested becomes more obvious. Still, there remains considerable overlap between the interested and the non-interested groups.

Examination of the characteristics of interested blacks and Hispanics as compared to their non-interested counterparts yields even more tentative conclusions regarding the quality of potential military manpower. Those

who express positive attitudes toward service for young people are of equivalent or higher quality than those who express negative attitudes. Those who expect to actually serve may be of somewhat lower quality than those who do not expect to serve. However, the analysis supporting this statement, particularly for blacks, provides a good deal of conflicting evidence as well. The most obvious conclusion is that those who express interest in military service, by any of the measure of interest, are not very different from those who do not express interest in serving.

In sum, the numbers of those expressing interest in actually serving are fairly large and their quality is not obviously poor. Further, large numbers who have a favorable attitude toward the idea of service do not themselves expect to serve. Responses to the question regarding whether they expect to serve, for most of these individuals, reflect some indecision. This group with favorable attitudes toward military service who lean away from serving themselves seems a prime target for recruiting effort. Including this group, the potential recruiting pool does not seem small nor of particularly poor quality compared to the size of the total age cohort.

The recruiting picture is not as favorable as the preceding paragraphs might seem to indicate, however, at least for whites. Among whites, the size of the group expressing strong interest in serving declines as age and school grade increases, so that among those reaching the age when the decision to join can in fact be made, relatively few are strongly inclined toward military service. Further, it appears that the socioeconomic characteristics of the interested and non-interested groups are similar for 14 and 15 year olds, but that the groups who are interested among

16 and 17 year olds tend to include many fewer people from middle and upper middle class backgrounds. Thus, arresting the decline in interest as age and grade increases not only would augment the supply of potential recruits, but would also increase the supply of a particularly desirable recruiting group. The obvious approach to attempting to stem declining interest is to try to reach the younger age groups and to maintain that contact.

Among blacks, declining interest is not the problem it is among whites. If anything, interest in serving in the military is greater for 17 year olds and for 12th graders than it is for younger groups. Further, the interest in service on the part of the middle and upper middle class youth does not appear to decline as age and grade increase.<sup>6</sup>

Comparison of socioeconomic characteristics was made between those who express interest in serving and those who actually serve, to test each of the measures of interest as a potential predictor of subsequent service. If it is assumed that those who finally decide to serve will be similar to those now serving, the interest measure which defines a group most similar to those now serving is the best predictor of subsequent service. No measure of interest in serving defined a group of either blacks or whites who were similar to those serving with respect to all variables tested.<sup>7</sup> The analyses give some indication that those who are currently serving are from more middle class backgrounds than those who express interest but are too young to serve. There are several interpretations that might be placed on this result. It may be an omen of things to come--quality of the force may decline as those who are now too young begin to join in the

6. Sample sizes were too small to derive meaningful results for Hispanics.

7. No test was performed for Hispanics.

future. However, it may also reflect the selectivity of the military, which would not be willing to induct some proportion of those who express interest in serving. It may also result from the enlistment of some relatively high quality youth who had, when in high school, been attracted to higher education or to the civilian labor market, but subsequently found the military a good alternative. Finally, the observed differences may simply reflect systematic differences in personal characteristics across age. The ages of those in the service obviously differ from those of the groups of interested youth. The latter seems unlikely to be the entire explanation. While it is possible that, for example, the Rotter scale scores fall as age increases, it is unlikely that, for example, mean parental education levels will differ over the time span relevant to the comparison (8 years).

Perhaps the most striking result of the comparison of those in the military with those interested in serving is that those in the military are more likely to be from military families. It is not surprising that people from military families are more likely than average to join the service, but it is surprising that among 14-17 year olds, those from military families are not particularly likely to express interest in serving. This finding may reflect a perceived unattractiveness of military service in 1979 which did not exist in previous year (so that military children in earlier years joined but 1979 military children didn't want to). It may also merely mean that when work decisions are made, many military children will in fact decide to join the service although they may earlier have expressed interest in other alternatives. Here, as for many of the findings in this report, more definitive analysis will be possible when the panel is



followed up in the next few years. Then there will be direct evidence as to whether military children join the service in disproportionate numbers.

## APPENDIX 2-A

### Definitions of Interest Measures

The two questions used to define interest in military service are:

1. Do you think for a young person to service in the military is a good thing?
2. Do you think, in the future, that you will try to enlist in the military?

In the list that follows, the first question is designated as the attitude question and the second as the expectation (of service) question. There are four possible responses to each question: definitely, probably, probably not, definitely not. "Don't know" is also treated as a valid response to either question.

The eight interest measures discussed in the paper are defined:

1. ATT1: Response of "probably" or "definitely" to the attitude question.
2. EXP1: Response of "probably" or "definitely" to the expectation question.
3. ATTEXP1: Response of "probably" or "definitely" to the attitude question and response of "probably" or "definitely" to the expectation question.
4. ATT2: Response of "definitely" to the attitude question.
5. ATTEXP2: Response of "definitely" to the attitude question and response of "probably" or "definitely" to the expectation question.
6. EXP2: Response of "definitely" to the expectation question.
7. ATTEXP3: Response of "probably" or "definitely" to the attitude question and response of "definitely" to the expectation question.
8. ATTEXP4: Response of "definitely" to the attitude question and response of "definitely" to the expectation question.

## APPENDIX 2-B

### Definitions of Independent Variables

#### A. Variables reflecting background characteristics

1. EDPAR: Highest grade of school completed by mother or father, whichever is greatest.
2. FAM14: Dummy variable. Value of one if respondent lived with his mother and father at age 14; otherwise, zero.
3. OCCBLUE: Dummy variable. Value of one if occupation of father has a three digit occupational code 401 through 575, 601 through 715, 740 through 785, 821 through 824, 901 through 984. If no father, then occupation of mother. Zero otherwise.
4. OCCFARM: Dummy variable. Value of one if occupation of father has a three digit occupational code 801 through 802. If no father, then occupation of mother. Otherwise, zero.
5. OCCMILI: Dummy variable. Value of one if occupation of father has a three digit occupational code 580 through 590. If no father, then occupation of mother. Otherwise, zero.
6. OCCPROF: Dummy variable. Value of one if occupation of father has a three digit occupational code 001 through 245. If no father, then occupation of mother. Otherwise, zero.
7. OCCSALE: Dummy variable. Value of one if occupation of father has a three digit occupational code 260 through 395. If no father, then occupation of mother. Otherwise, zero.
8. READING: Index, range 0 to 4, composed of the sum of three dicotomous variables with the third given double weight. The three variables reflect availability of reading material in household when the respondent was 14. First is the availability of magazines; second, newspapers, third, a library card.
9. SIBLINGS: Number of siblings.
10. SOUTH14: Dummy variable. Value of one if respondent resided at age 14 in the South as defined by the U.S. Census Bureau; otherwise, zero.
11. URBAN14: Dummy variable. Value of one if respondent lived in a country or farm area at age 14; otherwise, zero.

12. USBORN: Dummy variable. Value of one if respondent was born in the United States; two, otherwise.
13. WORKMOM: Dummy variable. Value of one if adult female in household when respondent was 14 worked for pay.

B. Variables reflecting personal characteristics

1. EDLIKE: Index measuring educational aspirations. Value of zero if respondent wants no more education than he has currently completed, regardless of level; one if respondent wants to complete more years of school than he has presently, but wants to complete less than 12 years of school; two if respondent wants to complete 12 years; three if respondent wants to complete more than 12 but less than 16 years; four if respondent wants to complete 16 years; five if respondent wants to complete more than 16 years.
2. EDNOW: Dummy variable. Value of one if respondent is currently enrolled in school; zero otherwise.
3. EDPROG: Dummy variable. Value of one if respondent's high school program is or was college preparatory; zero otherwise.
4. HEALTH: Dummy variable. Value of one if respondent claims that health prevents working, limits kind of work, or limits amount of work; zero otherwise.
5. KOWW: Score on a test of the knowledge of the world of work. Test consists of 9 multiple choice questions regarding the kinds of activities performed by a person in a certain occupation. Range is 0 to 9.
6. ROTSCALE: Score on abbreviated Rotter scale designed to measure an individual's perceived locus of control over his environment. Range is 4 to 16. Lower scores indicate greater perceived internal control.
7. WORKING: Dummy variable. Value of one if respondent holds a full or parttime job; zero otherwise.

## CHAPTER 3

### VOCATIONAL TRAINING

The purpose of this chapter is to explore the effect of vocational training on earnings in the civilian and military sectors of the economy. Such a comparison, given the availability of a substantial core of common data on both military and civilian cohorts, is of some empirical value in terms of human capital theory and is potentially of practical value to the armed forces. Although considerable evidence on the earnings effect of vocational training has been accumulated for workers in the civilian sector based on training received from both civilian and military sources, it is certain that studies do not exist which compare returns to training in the two sectors among like kinds of people, nor are we aware of studies which focus on vocationally trained servicemen while on active duty.

The notion that there are economic returns to training in the military and comparisons of these returns to the civilian sector would appear to be useful in at least three ways. Perhaps the most important use would be in the design of retention policies aimed at trained servicemen. Of considerable importance as well is the design of lateral entry policies for those who bring their training with them. Last, recruiting might be enhanced if economic returns to vocational training were shown to exist while in the military and such information were available to recruiters or circulated

by word-of-mouth from young servicemen to their service eligible civilian friends.

In order to explore the dimensions of human capital investments in the military context, the chapter proceeds in five sections. The first section explores a theoretical aspect of the human capital hypothesis and relates that issue to military training and to findings advanced in other chapters of this study. Section 2 briefly discusses some of the literature related to the earnings of vocationally trained veterans. Section 3 presents findings concerning the return to training and education in both the military and civilian sectors. The last two sections summarize the findings by comparing results from the two sectors and present conclusions.

#### 1. Returns to Training in the Military Context

From an empirical perspective, analysis of vocationally trained workers in the military and civilian sectors may supply some evidence on a here-to-fore unexplored dimension of human capital theory initially discussed by Gary Becker. In his book Human Capital (2), Becker advances the proposition that training is of two types, general and specific. General training is transferrable among firms and will not be paid for by an employer because the investment is lost if the worker leaves for another job. Specific training enhances productivity only within the firm and thus will be financed principally by the employer and not by the individual who would expect no return on such an investment were he to lose that job. In the civilian sector, formal vocation training is general training which must be paid for by the individual (although the government sponsors a limited

number of programs) either as an out of the pocket cost (for example, secretarial or barbering school) or in terms of lower pay while undergoing training (for example, apprenticeship programs in most trades). The investment in either of these programs presumably begins to pay off once the training is completed provided the worker takes a job which requires the use of the training. Thus in the civilian sector we expect a positive return to vocational training which has been completed and is used on the current job and maybe, even if it is not used, to the extent such training identifies productive individuals.

Within the military, during the term of one's contractual agreement, vocational training, whether it is in fact general or specific in the civilian sector sense, must be viewed as specific training. This is because military training cannot be transferred out of the military (at least in the short run) and is financed by the employer. Such training should, therefore, receive little or no economic return during the time of obligated service. Thus we expect Becker's proposition to hold and hypothesize that young servicemen in the NLS sample will not receive a pay premium for their completed vocational training during their term of obligated service.<sup>1</sup>

The statement above, that military training is financed by the employer, deserves some elaboration. While the direct financial cost of military sponsored vocational training is obviously paid for by the services,

1. An obvious argument is that the rigid military pay structure would render the results of an investigation into the determinants of military pay fruitless because salaries are determined by rank and time in service. Rank, however, will in large part be determined by quality and occupational needs of the services. It should be mentioned as well that within many firms and most unions rigid pay scales also exist. Of course, the civilian worker may have the opportunity to change employers in order to reach a higher pay step on a different ladder if lateral entry is a characteristic of that line of work.

there is the possibility that servicemen may pay at least a portion of the cost by accepting lower wages during the term of any enlistment in which they expect to receive vocational training. The internal rate of time preference of these servicemen would appear to be the critical variable in the decision to enlist or reenlist in order to pursue training. Theory holds that the individual weighs the discounted present value of the stream of expected returns to any human capital investment against the discounted present value of the stream of costs including opportunity costs. Even if the difference is positive, the investment will be made only if the expected rate of return is greater than the individual's internal rate of time preference. The internal rate of time preference of a "now" or "present" oriented person is high, meaning that he will make a human capital investment only if the expected rate of return is high thus inducing him to forego present earnings in return for much better earnings in the future. On the other hand, the future oriented person has a low internal rate of time preference, meaning he will pursue training when the expected rate of return is below that required to entice the "now" oriented person to take the training.

There are basically two reasons why a person would find the opportunity to take vocational training attractive and decide to make the investment. One reason is that he is a person with a relatively low internal rate of time preference, i.e., future oriented. A second reason is that his internal calculus suggests a high discounted present value to the training. The discounted present value can be high either because of a high expected rate of return or because of low expected costs. The expectation that



people joining the military may have a low internal rate of time preference and/or have a high discounted present value for the rate of return to training is plausible given two other findings advanced in this study. First, in Chapters 1 and 4 it is demonstrated quite conclusively that those in the military both desire and expect to receive more additional education and training than their civilian counterparts. This finding suggests a low internal rate of time preference. Second, in Chapter 5 we discuss our finding that servicemen have experienced more difficulty in finding a good job than their civilian counterparts. This finding suggests that servicemen may expect a high rate of return to their training because, in particular, their opportunity costs in terms of foregone pecuniary or non-pecuniary income in the civilian sector are low. (Of course, there is no explicit cost to the training either, but that may be true of some civilian training, for example, apprenticeships.) Both of these factors would lend support to the possibility that servicemen in fact pay part of the cost of their training by accepting low wages during the period of their obligated service in which they receive training. Part of the cost may be paid as well by servicemen's willingness to accept some non-pecuniary cost of military service in return for their training.

Some evidence to support the possibility that servicemen may pay a non-pecuniary cost of their training during their period of obligated service is advanced in Chapter 6. In that chapter we analyze reasons why reported levels of job satisfaction are lower in the military than in the civilian sector. We would merely argue here that some number of those choosing to enter the military in order to receive vocational training may do so knowing full well that the job won't be as satisfying

as civilian employment. In particular, to the extent job dissatisfaction in the military stems from the inability to get out at will, the recruit probably recognizes some of the non-pecuniary costs of his training but judges it to be offset by the expected rate of return to the training in either the military or civilian sector.

Whether or not military vocational training carries a positive rate of return in the civilian sector is open to question. Certainly advertising by the services, it would appear, has correctly seized upon the attractiveness of vocational training to a large percentage of the target population. But, this advertising at times seems to carry the message that the training does have a high rate of return because it is transferrable to well paying jobs in the civilian sector. As is discussed in the following section, the literature on this question is often in conflict. From the perspective of retaining trained servicemen in the military, however, the points advanced above that the serviceman may in fact pay part of the cost of his training through low wages and/or low job satisfaction support the likelihood that some monetary rewards will be necessary in order to reenlist at least some of those with vocational training.

As suggested above, while theory suggests that the military need not reward vocationally trained servicemen during the term of their contract, it is clear that reenlistment decisions will be made largely on the basis of the servicemen's perceived opportunity costs. And, to the extent they have paid part of the cost of their training by accepting low wages or some non-pecuniary costs, earnings increments will be required. The military's choices appear to be: granting a bonus in order to retain the skills they

have invested in and are now embodied as human capital in trained servicemen; agreeing to rapid promotions upon reenlistment; or phasing in early promotions over the initial enlistment period together with a smaller reenlistment bonus. The efficacy of these options cannot be demonstrated in this study, but insights into the existing structure of the reward system in the military as compared to the civilian sector can be gained. In particular, as further waves of the data become available, estimates can be made of the rate of return to military training both in the military and the civilian sectors. Additionally, differences in the internal rates of time preference among military trainees, civilian trainees, and those who receive no training will be possible. Extensions of these insights may be important to pay policy design particularly if lateral entry becomes a source of trained manpower to the military.

## 2. Military Vocational Training and Earnings

Empirical analysis using human capital theory has spawned numerous studies of the relationship between vocation training and subsequent earnings. In this section we confine our review primarily to those studies dealing with some aspect of military training.

Despite being the largest vocational training system in the nation and the only one of any size under the direct control of the federal government, there are few studies concerning the economic impact of this training on earnings either on those individuals while in the service or after their release. Even during World War II when the demand for combat troops was a maximum and military technology imposed lower skill requirements on servicemen than at present, approximately one-third of those who served received

some specialist training. By 1974 the figure reportedly had risen to approximately 90% and the average length of formal specialized training exceeded three months (16). In our sample of young servicemen, 86 percent had had primary vocational training and on average had received just over 11 weeks of training.

The last decade has produced a few research efforts which study the relationship between military training and civilian earnings. Massell and Nelson (16) analyze separate regressions for cohorts of Army, Navy and Air Force enlisted personnel who left the service in 1971. In regressions which did not control for the relationship between a veteran's civilian and military occupation, they found that only in the case of Air Force personnel did military occupation explain any of the variation in civilian earnings. When the civilian and military occupations were controlled, those from Army professional and technical job categories who had received electronics training earned about 9% more than those who did not receive this training. If the veteran had been in a blue collar electronics job, no earnings difference was found.

Norrblum (18) advances the hypothesis that investments in different types of military training have a significant effect on productivity and thus on wages if individuals are employed in civilian occupations in which they are able to use skills acquired during their military service. The hypothesis is supported for a group of Army veterans who left the service in 1971 and who received vocational training, but it is not supported for those who received on-the-job training in military specialties. Each year of formal military training which is related to one's civilian occupation added almost 12 percent to civilian earnings.

Warner (23) analyzes the 1970-1974 earnings of a cohort of enlisted veterans who left the service in FY 1969. Those employed in occupations using their training are compared to a group of trained veterans who chose unrelated civilian jobs after their military service. After corrections for selectivity bias, Warner found that some types of military occupational training add substantially to a veteran's civilian earnings capacity.

Detray (7) uses data from an earlier NLS cohort collected from 1966 to 1973 to study veterans' earnings. He finds that servicemen who received training differ from other veterans and from the population in general. Controlling for these differences is difficult he argues, but his conclusion is that training received from military sources appears to increase civilian earnings when innate productivity differences are dealt with appropriately.

Fredland and Little (11) use the NLS panel data of older men to study the effect of military training some twenty years after the investment. They compare three groups of veterans: those who did not receive training, those who received training and do not use it, and those who received training and use it on their present job. Arguing that both groups who receive training will be of the same ability level on average, they find that the users of military training receive an earnings premium of approximately 10 percent while nonusing takers receive none.

In sum, these studies appear to conclude that military training of certain types, if it is used on the civilian job, can enhance earnings. These studies, however, investigate a question that cannot be addressed by the 1979 NLS data until later panels are available and larger numbers have left the military. At that time, as well, one will be able to compare

the earnings progress of groups who continue to use their training in the military with those who opt for using their military training in the civilian sector. Analysis of the presently available data can only determine whether or not there is a return to military training while in the military and compare the return to training received and used in the civilian sector.

### 3. Results

The approach used in our empirical analysis of the earnings effects of military and civilian vocational training is to study each sector separately. Theoretically this is not the best approach, but the data present constraints which make it impractical to pool the samples.<sup>2</sup> Therefore, we have specified earnings regressions for each sector. Civilian training is discussed first. Following the discussion of the military results, the two sectors are compared.

Means and standard deviations of labor market variables for a sample of nearly 1400 civilian workers are shown on Table 3-1. Descriptions of the variables are in Appendix 3-A. This sample has almost 12 years of education and not quite three years of labor market experience. A few have had

2. First, the time rate of pay is different in the two sectors. While this problem could be overcome there remains the problem that some military compensation is received in kind. Servicemen are much more likely to have received vocational training than civilians, but it is impossible at the present time to cross classify and thus control for the occupations in which the training is used. Additionally, variables which are known to be determinants of civilian pay are not appropriate in military pay regressions. For example, one should not include regional, urban, hours worked, or union membership variables in the equations specified for the military sample.

TABLE 3-1  
MEANS AND STANDARD DEVIATIONS OF VARIABLES  
CIVILIAN SAMPLE, MEN 18-22<sup>a</sup>

	<u>Mean</u>	<u>Standard Deviation</u>
Wages	\$5904.73	\$4428.32
LN Wages	8.33	.96
Education	11.88	1.53
Married	.12	.33
South	.28	.45
Black	.10	.30
Hispanic	.06	.24
Health	.03	.18
Months in Military	.22	2.11
Labor Force Experience	2.86	1.67
Weeks Worked	40.51	14.53
SMSA	.69	.46
Take Government Training	.01	.09
Complete Government Training	.02	.13
Use Government Training	.00	.06
Take Non-Government Training	.13	.33
Complete Non-Government Training	.11	.31
Sample Size	1388	

<sup>a</sup>Weighted Data

military service.<sup>3</sup> The sample worked just over 40 weeks in 1978 with mean wages of about \$5900. Forty-two had participated in government sponsored vocational training programs, 24 had completed the training and 5 claimed to use the training. Vocational training from sources other than the government was much more frequently in the sample. Of the 325 who had received non-government training, 147 had completed it. We do not know, unfortunately, if those completing the training actually were using it on their present job.

The earnings regressions shown on Table 3-2 are for both 1978 wages and the natural log of those wages. The equations explain about 35 percent of the wage variation. Important explainers of wages include whether or not the individual was married, years of education, labor force experience, weeks worked, and non-government vocational training. In contrast to non-government training, the earnings effect of government sponsored training is minimal in these equations. One scenario suggested by the government training results is that better than average quality persons begin such programs, but only those with few alternatives actually complete them. So few ultimately use government training that its effect is insignificant. Vocational training received from sources outside of government appears to be of substantial importance, however. Those who initiate this training, even though they do not complete it, receive an earnings premium of about \$1000; completing the training adds an additional \$1500. The scenario in this case is straightforward: better than average quality

3. The mean of .22 months would translate, for example, into 20 people with three years of military service.



TABLE 3-2  
CIVILIAN PAY REGRESSIONS FOR MEN 18-22<sup>a</sup>

<u>Variable</u>	<u>Wages</u>	<u>LN Wages</u>
Education	831.85***	.18***
Married	1772.69***	.32***
South	-528.28**	-.04
Black	-497.90	-.20***
Hispanic	-1235.82***	-.14*
Health	-889.08*	-.09
Months in Military	1.96	.00
Labor Force Experience	1030.12***	.20***
Weeks Worked	116.93***	.03***
SMSA	554.15**	.06
Take Government Training	602.35	.11
Complete Government Training	-1059.12	-.06
Use Government Training	-547.95	-.16
Take Non-Government Training	1003.18***	.16***
Complete Non-Government Training	1580.59***	.26***
Constant	-12234.08	4.22
$R^2$	.36	.44
F	52.53	75.07
Sample Size	1388	

<sup>a</sup>Weighted Data  
 \*\*\*Significant at .01  
 \*\*Significant at .05  
 \*Significant at .10

persons begin such programs and the completion of the program adds to earnings either because being identified with a training program screens out productive workers or because the training, even if it is not completed, adds to their productivity. In the absence of a use-of-training variable one can do little to distinguish between these alternatives.

Specification of earnings regressions for the military present an interesting challenge because many of the standard labor market variables are not appropriate determinants of military pay. For example, neither hours worked or weeks worked should be used in the military context. Yet, one would expect more capable servicemen to be rewarded in some way, most likely by more rapid promotions which carry with them increased pay. In addition, the military offers reenlistment bonuses which are usually tied to the completion of schools. Thus we expect to find determinants of military pay which include background and human capital variables but do not include labor market variables of the type that are generally found in human capital specifications of civilian sector earnings.

Table 3-3 shows the means and standard deviations of the variables we include in the regression equations of military earnings. Each of these variables is explained in Appendix 3-B. Noticeably absent from these variables is military rank. Military rank is not included because if it were the equation specified would be an identity given that rank, time in service and marital status determine regular military compensation.

Comparing the military sample to the civilian (Table 3-1) it is evident that yearly military pay is over \$1000 greater than the mean reported by civilians. As expected, the variation in civilian pay is much

TABLE 3-3  
MEANS AND STANDARD DEVIATIONS OF VARIABLES:  
MILITARY SAMPLE, MEN 18-22

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<u>Variable</u>	<u>Mean</u>	<u>Standard Deviation</u>
Monthly Military Pay	\$618.09	\$57.72
LN Monthly Military Pay	6.42	.10
Education	11.66	.93
Labor Force Experience	3.39	1.32
Time in Service (months)	23.67	11.71
Married	.19	.39
Black	.20	.40
Primary Vocational Training	.86	.35
Secondary Vocational Training	.12	.33
Weeks of Vocational Training	10.85	11.48
Primary OJT	.62	.49
Secondary OJT	.17	.37
Weeks OJT	11.09	17.32
Sample Size		782

greater. The mean number of years of education is slightly lower in the military and the variation is smaller, as expected. The sample of servicemen has about half a year more labor market experience. The military is also more black and more likely to be married. Experience with formal training is over three times as likely in the military as in the civilian sample.

Table 3-4 shows that the results differ little as between the linear and log specifications. In these regressions, education is not a determinant of pay. As would be expected, time in the service and being married boost income. They add about \$4 and \$56, respectively, to monthly pay. Other things held equal, however, each year of labor force experience appears to subtract about \$4 per month. The sign on the black coefficient is negative, but the coefficient is insignificant. Primary vocational training adds over \$8 per month to pay but the addition for having secondary training is insignificant. Each week of training adds about \$.22, however. On-the-job training in one's primary and secondary specialties subtracts and adds about the same amounts, \$6.72 and \$6.62, respectively. We can only speculate about the negative coefficient for the primary on-the-job training result. We suggest that many of those who report receiving primary OJT have not received primary vocational training because they are not particularly able individuals. On the other hand, those young servicemen who have already begun a secondary area of occupational expertise may be among the most able.

The results of Table 3-4 tend to deny the hypothesis that there is no return to specific training (as we assumed all military to be) while in the

TABLE 3-4  
MILITARY PAY REGRESSIONS, MEN 18-22

<u>Variable</u>	<u>Monthly Military Pay</u>	<u>LN Monthly Military Pay</u>
Education	1.66	.003
Labor Force Experience	-3.81***	-.006***
Time in Service (months)	3.92***	.006***
Married	56.39***	.087***
Black	-2.58	-.004
Primary Vocational Training	8.35***	.013**
Secondary Vocational Training	-2.18	-.003
Weeks of Vocational Training	.22**	.000**
Primary OJT	-6.72***	-.010***
Secondary OJT	6.62**	.010**
Weeks OJT	-.061	-.000
Constant	503.43	6.24
$\bar{R}^2$	.78	.76
F	250.55	231.92
Sample Size	782	

\*\*\*Significant at .01

\*\*Significant at .05

\*Significant at .10

military. Although it may be argued that selection bias based on ability is present here, the education variable should control for ability to some extent. We pursue this issue somewhat further below. Perhaps the greatest anomaly, however, is that an organization which places such a high value on recruiting high school graduates appears to reward incremental educational attainment not at all.

Because the results contained in Table 3-4 are based upon the inclusion of some servicemen who are on their second enlistment and may have benefitted from promotion guarantees to secure their reenlistment, we reran the equations using only first termers. Means and standard deviations for this smaller sample are shown on Table 3-5. We add one variable in this analysis, a dummy variable which indicates whether or not the respondent signed "for a job paying a bonus during (his) most recent enlistment." We use this variable to identify servicemen who did not expect to receive much vocational training during their present enlistment. Given that the sample is now reduced to first termers, the reason that one would respond positively to this question is that the job is in the combat arms where bonuses at times are necessary in order to meet manning requirements. This variable, then, along with education helps control for selectivity bias in the sample. Given the way we define pay (i.e., excluding the amount of bonuses) and the likelihood these people are in the combat arms occupations, we expect the coefficient for the "sign for bonus" variable to be negative. That is, we expect those who select themselves out of the group which has an opportunity (or even expectation) for vocational training to be among the least able of the enlistees.

TABLE 3-5  
MEANS AND STANDARD DEVIATIONS OF VARIABLES:  
FIRST TERM MILITARY, MEN 18-22

<u>Variable</u>	<u>Mean</u>	<u>Standard Deviation</u>
Monthly Military Pay	614.74	58.06
LN Monthly Military Pay	6.42	.09
Education	11.67	.92
Labor Force Experience	3.34	1.31
Time in Service (months)	22.90	11.23
Married	.18	.39
Black	.20	.40
Primary Vocational Training	.86	.35
Secondary Vocational Training	.11	.32
Weeks of Vocational Training	10.68	11.36
Primary OJT	.61	.49
Secondary OJT	.16	.36
Sign for Bonus	.14	.34
Weeks OJT	11.33	17.73
Sample Size	720	

TABLE 3-6  
MILITARY PAY REGRESSIONS:  
FIRST ENLISTMENT, MEN 18-22

<u>Variable</u>	<u>Monthly Military Pay</u>	<u>LN Monthly Military Pay</u>
Education	2.22	.004
Labor Force Experience	-3.90***	.007***
Time in Service (months)	3.91***	.006***
Married	56.09***	.088***
Black	-1.97	-.003
Primary Vocational Training	8.85***	.015***
Secondary Vocational Training	-3.29	-.005
Weeks of Vocational Training	.25**	.000**
Primary OJT	-7.52***	-.012***
Secondary OJT	8.48***	.014***
Sign for Bonus	-4.10	-.009*
Weeks OJT	-.06	-.000
Constant	496.89	6.23
$\bar{R}^2$	.76	.75
F	192.16	180.40
Sample Size	720	

\*\*\*Significant at .01

\*\*Significant at .05

\*Significant at .10



Table 3-6 shows the results of this specification of our military pay equation. These results differ little from those presented in Table 3-4. The coefficient on education, while a little more positive, is still insignificant. Primary vocational training is again positive and significant, adding about the same amount to monthly earnings as before, nearly nine dollars or about one and a half percent. Each week of training adds \$.25. The OJT variables perform as before. The variable we added in this specification, "sign for bonus," is, as expected, negative and marginally significant in the log form of the equation.

#### 4. Summary

The results of our analysis of the earnings effects of vocational training in the civilian and military sectors reveal positive effects in both sectors. Clearly there is a wide disparity in these earnings effects between the sectors, however. Participation in, and completion of, non-government sponsored vocational training programs in the civilian sector may add as much as 40 percent to earnings. Primary vocational training in the military sector appears to add just over one percent to the incomes of first term enlistees. It must be recognized, of course, that the institutionalized arrangements for monetary reward determination are vastly different between the two sectors. To the extent vocational training in the civilian sector is general training and military training is specific training, as we have argued, it is paid for by the individual in the first instance and the employer in the second. Additionally, opportunity costs for the two groups may differ a great deal. It may be, therefore, that the rate of return to training is similar in the two

sectors. The great difference in the coefficients between the sectors suggests, however, that there is a higher rate of return to training in the civilian sector.

On the other hand, the results in the military sector are closely in line with theory which would predict little or no return to training during the term of obligated service. The evidence that there is a small return suggests that the military does reward trained individuals with earlier promotions which are designed to provide positive feedback and encourage the serviceman to start thinking about reenlistment. The apparent existence of early promotions for trained servicemen indicates that the system of rewards is somewhere between the extreme policies outlined earlier. Those extremes were a strict and rigid pay policy during the first enlistment while saving promotions and bonuses as a reenlistment package almost exclusively, and a pay policy which provides incremental increases during the term of service which are more in line with expectations in the civilian sector.

From the perspective of human capital investments it is curious that our results suggest that, evaluated at the mean, an additional year of education is worth over \$800, or about 18 percent, in the civilian sector while its return in the military sector, while positive, is insignificant. When one considers the very great emphasis on enlisting high school graduates, the failure to reward this accomplishment would appear to have the potential for being counterproductive. This seems especially true given our results which indicate a return of about \$11 : month for 10 weeks of vocational training and no significant return to an additional year of education. If these results are accurate, there appears to be

almost no return to incremental human capital investment in the military during the period of obligated service. While theory would predict such a result in the case of specific training (vocational training in this analysis) such a finding in the case of general training which is paid for by the employee (education in our equations) may be without precedent."

#### 5. Conclusions

We conclude that, in line with human capital theory, there is little incremental return to the individual for human capital investments in the form of military vocational training during the period of obligated service. Such small return as there is indicates that the military's pay policies are not as rigid as they might be, but neither do they reward human capital investments as flexibly as the civilian sector. This conclusion clearly points to the necessity for continuing the policy of reenlistment bonuses for trained servicemen. If rewards for human capital investments embodied in trained servicemen are not phased in over the term of the enlistment, it appears that competition with the civilian sector will make it inevitable that reenlistment bonuses be given to many trained servicemen. Otherwise, the military will lose some of its investment entirely.

The finding that additional education appears to go unrewarded in the military is surprising in light of the continual emphasis on high school graduates as recruiting targets. We believe that such a system of rewards has to place the military at an extreme disadvantage given the high return to additional education which has been so well documented in

4. These results have implications to the controversy between the human capital and screening hypotheses of returns to education and training, but we will not discuss those implications here.

the civilian sector. This potential problem with military compensation is deserving of considerable attention, particularly if the military hopes to increase enlistments from among junior college students and/or graduates.

APPENDIX 3-A  
DESCRIPTION OF VARIABLES  
FOR CIVILIAN PAY REGRESSIONS

Wages	1978 Wage and Salary Income.
Married	Dummy variable: 1 represents presently married; 0 otherwise.
South	Dummy variable: 1 represents residence in the South at age 14; 0 otherwise.
Black	Dummy variable: 1 represents racial group is black; 0 otherwise.
Hispanic	Dummy variable: 1 represents ethnic group is Hispanic; 0 otherwise.
Health	Dummy variable: 1 represents health limits kind or amount of work; 0 otherwise.
Education	Years of education as of 1979.
Months in Military	Months of prior military service.
Labor Force Experience	In years, computed from Age-5-Years of education.
Weeks Worked	Weeks worked during 1978.
SMSA	Dummy variable: 1 represents residence in a Standard Metropolitan Statistical Area; 0 otherwise
Take Government Training	Dummy variable: 1 represents those who have taken government training but did not complete or do not use it; 0 otherwise.
Complete Government Training	Dummy variable: 1 represents only those who have completed government training but do not use it; 0 otherwise.
Use Government Training	Dummy variable: 1 represents only those who use government training; 0 otherwise.
Take Non-Government Training	Dummy variable: 1 represents those who have taken non-government training but did not complete it; 0 otherwise.
Complete Non-Government Training	Dummy variable: 1 represents only those who have completed non-government training; 0 otherwise.

APPENDIX 3-B  
DESCRIPTION OF VARIABLES  
FOR MILITARY PAY REGRESSIONS

Monthly Military Pay	A computed variable based on pay grade, time in the service and whether married or not, using 1979 pay tables.
Education	Years of education
Labor Force Experience	In years, computed from Age-5-Years of education.
Married	Dummy variable: 1 represents presently married; 0 otherwise.
Black	Dummy variable: 1 represents racial group is black; 0 otherwise.
Primary Vocational Training	Dummy variable: 1 represents formal training for primary military job code; 0 otherwise.
Secondary Vocational Training	Dummy variable: 1 represents formal training for second military job; 0 otherwise.
Weeks of Vocational Training	Weeks of training in primary and secondary military jobs.
Primary OJT	Dummy variable: 1 represents on-the-job training received for primary military job; 0 otherwise.
Secondary OJT	Dummy variable: 1 represents on-the-job training received for second military job; 0 otherwise.
Weeks OJT	Weeks of on-the-job training in primary and second military job.

## CHAPTER 4

### COMPARISON OF EDUCATIONAL LEVELS, EDUCATIONAL ASPIRATIONS, AND EDUCATIONAL EXPECTATIONS OF MILITARY AND NON-MILITARY MALES AGES 18-22

This chapter concerns educational levels, aspirations and expectations of young male members of the armed forces in comparison to those in the same age group who have never served. The sample is limited to men over 17 years of age. Blacks, whites, and Hispanics are considered separately. Blacks and whites are also disaggregated by branch of service. There are two purposes to be served by such a study. First, information on educational levels, aspirations and expectations provides some insight into the quality of those who serve in comparison to those who do not. Education is the most often cited quality measure. Second, educational aspirations and expectations are suggestive of the utility of using the GI bill as a recruiting attraction.

#### 1. Educational Levels

Table 4-1 presents mean educational levels for whites, blacks and Hispanics in the military in comparison with various groups of the same age who have never served, together with results of tests for statistical differences in those means. Table 4-2 records percentages of each group having high school diplomas and breakdowns by type of high school program for each group.

For whites, the results show clearly that members of the military average fewer years of education than their counterparts who have not served.

TABLE 4-1  
MEAN LEVELS OF EDUCATION OF MALES 18-22  
SERVING IN THE MILITARY  
IN COMPARISON WITH THOSE WHO HAVE NEVER SERVED<sup>a,b,c</sup>

Whites	Military	All	Non-Military	
			Not in School	Working
			Full Time	
All Ages	11.63 (576)	12.00*** (1482)	11.89* (1248)	11.97*** (1002)
18	11.37	11.16***	11.10***	11.21***
19	11.38	11.77**	11.66	11.80***
20	11.65	12.30***	12.16***	12.20***
21	11.81	12.71***	12.49***	12.50***
22	11.91	12.51***	12.35**	12.39**
All Ages, ≤ 12 years school	11.53 (536)	11.34*** (1069)	11.32*** (963)	11.42*** (771)
<b>Blacks</b>				
All Ages	11.88 (161)	11.32*** (617)	11.26*** (522)	11.38*** (326)
18	11.56	10.70**	10.63**	10.85*
19	11.66	11.17***	11.19***	11.30**
20	11.86	11.67*	11.49**	11.50**
21	12.01	11.81*	11.72**	11.70*
22	12.22	11.98	11.71	11.81
All Ages, ≤ 12 years school	11.76 (146)	10.88*** (526)	10.89*** (455)	11.02*** (283)
<b>Hispanics</b>				
All Ages	11.50 (53)	10.84*** (427)	10.63*** (356)	10.62*** (274)
18	11.02	10.22*	10.12*	10.13*
19	11.65	11.03**	10.88***	10.77***
20	11.15	11.01	10.51	10.35
21	11.72	11.29*	11.08**	11.20*
22	11.91	10.60*	10.52*	10.64
All Ages, ≤ 12 years school	11.35 (49)	10.19*** (361)	10.08*** (310)	10.00*** (236)

a. Means are computed using weighted data.

b. Two-tail t test - \*\*\*significantly different from military sample at .01  
 \*\*significantly different from military sample at .05  
 \*significantly different from military sample at .1  
 Significance tests based on unweighted comparisons.

c. Unweighted sample sizes in parentheses.



TABLE 4-2  
EDUCATIONAL CHARACTERISTICS OF MALES 18-22  
SERVING IN THE MILITARY  
IN COMPARISON WITH THOSE WHO HAVE NEVER SERVED<sup>a,b,c</sup>

	Military	All	Non-Military	
			Not in School	Working
Whites			Full Time	
Percent with High School Diploma or Equivalent	85.1%	74.5%***	73.0%***	75.9%***
Percent College Preparatory High School Program	23.8%	36.0% <sup>®</sup>	29.8% <sup>®</sup>	29.4% <sup>®</sup>
Percent General High School Program	58.4%	47.5%	51.7%	51.1%
Percent Vocational High School Program	15.1%	15.3%	17.2%	18.2%
Blacks				
Percent with High School Diploma or Equivalent	92.5%	52.6%***	53.4%***	58.7%***
Percent College Preparatory High School Program	30.9%	27.4%	25.5%	26.1%
Percent General High School Program	50.3%	55.7%	56.8%	58.0%
Percent Vocational High School Program	15.9%	14.1%	14.3%	13.1%
Hispanics				
Percent with High School Diploma or Equivalent	80.9%	48.7%***	46.4%***	48.5%***
Percent College Preparatory High School Program	16.3%	29.3%	24.7%	26.1%
Percent General High School Program	68.9%	53.9%	56.9%	51.9%
Percent Vocational High School Program	14.8%	14.8%	16.1%	19.0%

a. Percentages calculated using weighted data.

b. Two-tail t test - \*\*\*significantly different from military sample at .01.

c. Chi-square test - <sup>®</sup>distribution of types of high school program different from military sample at .01.

Significance tests based on unweighted comparisons.

This is true whether or not the non-military group being considered excludes those who are presently in school, or includes only those who are working. When the figures are broken down by age group, 18 year old members of the military are found to have more education than their 18 year old civilian counterparts, but 19-22 year old military members average less education than civilian males of the same ages. The result for 18 year olds is explained by the fact that many of the civilians (34%) are in their senior year in high school, while those in the military are mostly high school graduates.

While these facts suggest that the military attracts below average quality white individuals as measured by this one key indicator, examination of some other facts reveals that this conclusion is tenuous. First, given the ages of the people considered here, members of the military cannot have completed as much education as some civilians who went directly from high school to college and even to graduate school. The result is inevitably biased by truncating the sample at age 22. Further, military policy, which emphasizes recruitment of high school graduates, influences the outcome. In essence, military service is an alternative to higher education for those in their late teens. Individuals choosing the military initially may later choose more education.

Since policy emphasizes recruiting high school graduates, let us examine only those who have no more than 12 years of education. When whites in the military with no more than 12 years of education are compared with their counterparts, military members average more education, not less. In other words, when we exclude the population with college experience, military members appear to be of relatively high quality. This reflects the fact that

the military is successful in its efforts to attract high school graduates, but attracts relatively few with college experience. High school dropouts, on the other hand, often fail to meet entrance requirements for the military. Another statistic from Table 4-2 confirms the finding further. A significantly larger proportion of white military members have their high school diplomas than do civilians of the same ages.

Another dimension of the high school experience which speaks to the quality question is the type of high school program, also shown on Table 4-2. The survey classifies respondents' programs as vocational, commercial, college preparatory, or general. Not surprisingly, the distribution of type of program among white military members differs significantly from that of the non-military sample. The non-military sample includes more who took college preparatory programs and fewer whose programs were general. However, when the non-military sample includes only those working, or only those not in school full time, the significance of the difference in the distribution disappears.

In sum, the data show that with respect to education, while the whites in the armed forces appear to be of somewhat lower quality than the target 18-22 year old white population as a whole, they are of equal or superior quality when compared to those contemporaries who are not in school or who are working.

Among blacks and Hispanics, the picture on Table 4-1 differs. Regardless of the non-military comparison group, the blacks in the military average significantly more education than do their non-military counterparts.

This is true at each age level.<sup>1</sup> When those with college experience are excluded, the differences in mean education levels are even sharper. The differences in means are even greater for Hispanics than for blacks. Those Hispanics in the military have completed, on average, more years of schooling than their non-military counterparts. Excluding those with college experience, the difference in mean education level is greater than one full year.

Table 4-2 shows that the black military group includes a much larger proportion of individuals with high school diplomas or equivalent than is true among those blacks who have never served. The same is true for Hispanics. The differences between the military and non-military groups with respect to type of high school curriculum are also shown on Table 4-2. The curriculum pattern for Hispanics is similar to that for whites. The non-military sample includes more who followed a college preparatory program. However, the pattern for blacks differs. Despite military recruiting being focussed on high school graduates, more of the blacks in the military have taken a college preparatory high school curriculum than have blacks who have not joined the service. The differences in the distributions of type of high school program are not statistically significant, however.

In sum, there is little ambiguity regarding the results for blacks and Hispanics. Black and Hispanic males 18-22 in the military are, with respect to education, of higher quality than are their counterparts who have never served.

1. Differences are not statistically significant for the sample at age 22. For Hispanics, differences are not significant for four comparisons.

## 2. Educational Expectations and Aspirations

Respondents to the survey were asked two questions regarding their future educational plans. First, "What is the highest grade or year or regular school, that is elementary school, high school, college, or graduate school, that you would like to complete?" Second, "As things stand now, what is the highest grade or year you think you will actually complete?" Responses to these questions are obviously likely to be highly correlated. However, for many of those who are working full time, including those in the military, the opportunity cost of pursuing further education may appear high, so that the amount of education they expect to get in fact is less than the amount that they would like to get if cost were no object. Table 4-3 presents correlations between educational expectations and aspirations for the three racial groups. The correlations are lower for those in the military than for any of the non-military groups and, except among Hispanics, slightly lower for those who are working. Evidently somewhat fewer of those in the military expect to realize their aspirations regarding educational level.<sup>2</sup> These facts are further confirmed by comparing the evidence presented on Tables 4-4 and 4-5. The difference between mean educational aspirations and mean expectations is consistently greater for the military than for the non-military comparison groups.

These two tables reveal another, more striking finding: both the aspirations and expectations of those who are in the military exceed the aspirations and expectations of those who have never been in the service.

2. They might expect to get more education than they want to. That situation is obviously rare, since few people of 18 or more are coerced to get more education than they want.

TABLE 4-3  
CORRELATIONS BETWEEN EDUCATIONAL  
ASPIRATIONS AND EXPECTATIONS  
FOR MEN 18-22, BY RACE

	<u>Military</u>	<u>All</u>	<u>Non-Military</u>	
			<u>Not in School</u> <u>Full Time</u>	<u>Working</u>
White	.73	.87	.85	.84
Black	.70	.81	.79	.78
Hispanic	.73	.88	.87	.89

TABLE 4-4  
MEAN EDUCATIONAL ASPIRATIONS OF MALES 18-22  
SERVING IN THE MILITARY  
IN COMPARISON WITH THOSE WHO HAVE NEVER SERVED<sup>a, b</sup>

<u>Whites</u>	<u>Military</u>	<u>All</u>	<u>Non-Military</u>	
			<u>Not in School</u> <u>Full Time</u>	<u>Working</u>
All Ages	15.14	14.56***	14.21***	14.25***
18	14.91	14.29***	13.91***	13.94***
19	14.80	14.39***	13.97***	14.05***
20	15.15	14.66***	14.32***	14.25***
21	15.36	15.00	14.70**	14.82*
22	15.51	14.24***	14.06***	14.01***
All Ages, ≤ 12 years education	15.05	13.79***	13.55***	13.58***
<u>Blacks</u>				
All Ages	15.69	14.53***	14.34***	14.46***
18	15.09	14.29	14.04	14.32
19	16.24	14.54***	14.36***	14.45***
20	15.40	14.71***	14.47***	14.52***
21	15.43	14.74***	14.58***	14.70***
22	16.14	14.34***	14.14***	13.88***
All Ages, ≤ 12 years education	15.61	14.14***	14.00***	14.13***
<u>Hispanics</u>				
All Ages	15.42	14.02***	13.71***	13.71***
18	15.38	13.86*	13.63**	13.83*
19	15.35	13.95**	13.77***	13.68***
20	15.67	14.14*	13.48***	13.34***
21	15.17	14.11***	13.83***	13.78*
22	16.21	14.34***	14.19***	14.23***
All Ages, ≤ 12 years education	15.34	13.44***	13.24***	13.19***

a. Means are computed using weighted data

b. Two-tail t test - \*\*\*significantly different from military sample at .01  
 \*\*significantly different from military sample at .05  
 \*significantly different from military sample at .1

Significance tests based on unweighted data.

TABLE 4-5  
MEAN EDUCATIONAL EXPECTATIONS OF MALES 18-22  
SERVING IN THE MILITARY  
IN COMPARISON WITH THOSE WHO HAVE NEVER SERVED<sup>a, b</sup>

<u>Whites</u>	<u>Military</u>	<u>All</u>	<u>Non-Military</u>	
			<u>Not in School</u> <u>Full Time</u>	<u>Working</u>
All Ages	14.43	14.03***	13.63***	13.67***
18	14.78	13.86***	13.46***	13.51***
19	13.89	13.86*	13.36***	13.50***
20	14.41	14.20	13.83***	13.78***
21	14.66	14.33	13.96**	14.02*
22	14.67	13.55*	13.32***	13.29***
All ages, ≤ 12 years education	14.31	13.20***	12.93***	12.97***
<u>Blacks</u>				
All Ages	14.86	13.92***	13.71***	13.83***
18	15.02	13.81*	13.53*	13.69*
19	15.19	13.97**	13.80**	14.01**
20	14.46	13.86**	13.58***	13.62***
21	14.79	14.11**	13.88***	13.98***
22	15.18	14.14*	13.91**	13.96*
All ages, ≤ 12 years education	14.77	13.47***	13.31***	13.45***
<u>Hispanics</u>				
All Ages	14.54	13.45***	13.08***	13.19***
18	14.54	13.38*	13.08	13.49
19	14.82	13.45*	13.23**	13.13**
20	14.30	13.44	12.61**	12.53**
21	14.39	13.59**	13.36**	13.41**
22	14.86	13.30	13.15	13.51
All ages, ≤ 12 years education	14.42	12.80***	12.53**	12.59***

a. Means are computed using weighted data.

b. Two-tail t test - \*\*\*significantly different from military sample at .01  
 \*\*significantly different from military sample at .05  
 \*significantly different from military sample at .1

Significant tests based on unweighted data.



This is true of blacks, white and Hispanics. It is true not only when the military are compared to those non-military people currently in the civilian labor force, but also when they are compared to the entire non-military sample, which includes those who are in college, some of whom in turn expect to go on for graduate degrees. A somewhat different presentation of essentially the same information (Tables 4-6 and 4-7) leads to the same conclusion. While a smaller proportion of white military members than their civilian contemporaries want or expect to complete any graduate school, a much larger proportion aspires to, and expects to complete, college; and in turn, a much smaller proportion wants and expects to acquire no more than a high school diploma. Among blacks and Hispanics, larger fractions of the military samples aspire to completing even graduate school. A larger fraction of the Hispanics in the military actually expect to complete graduate training, as compared to their non-military counterparts.

Part of the explanation for the greater mean aspirations and expectations on the part of the military members resides in the fact that more military members are high school graduates. Still, because for whites mean educational levels are higher than those not in the military, the difference in mean aspirations and expectations is not due mainly to differences in education levels already achieved. For blacks and Hispanics, on the other hand, differences in current education levels could be the underlying explanation for differences in expected levels of education.

To test more directly the extent to which differences in aspirations and expectations are due to already existing differences in education level, the military group is compared to the non-military group with respect to whether they wish to (and expect to) get more schooling than they

TABLE 4-6  
EDUCATIONAL ASPIRATIONS OF MALES 18-22<sup>a,b</sup>

Years of Education Desired	Military	All	Non-Military	
			Not in School Full Time	Working
<u>Whites</u>				
<12 years	.7%	1.7%***	2.1%***	1.4%***
12 years	20.7%	35.2%	40.3%	40.0%
13-15 years	14.0%	13.3%	14.5%	15.1%
16 years	47.2%	27.2%	26.0%	26.8%
>16 years	17.5%	22.6%	17.2%	16.6%
<u>Blacks</u>				
<12 years	0	2.5%***	3.0%***	2.8%***
12 years	10.5%	35.7%	38.5%	36.4%
13-15 years	15.1%	10.0%	11.0%	11.0%
16 years	52.2%	31.0%	29.6%	30.4%
>16 years	22.3%	20.8%	18.0%	19.3%
<u>Hispanics</u>				
<12 years	0	8.3%***	9.9%***	11.1%***
12 years	12.7%	33.9%	37.3%	35.7%
13-15 years	20.0%	12.4%	13.0%	12.5%
16 years	46.7%	27.0%	24.7%	23.4%
>16 years	20.6%	18.4%	15.1%	17.3%

a. Percentages computed using weighted data.

b. Chi-square test - \*\*\*distribution of educational aspirations  
significantly different from military sample at .01.

TABLE 4-7  
EDUCATIONAL EXPECTATIONS OF MALES 18-22<sup>a, b</sup>

Years of Education Expected	Military	All	Non-Military	
			Not in School	Working
			Full Time	
<u>Whites</u>				
<12 years	2.0%	7.4%***	8.6%***	6.8%***
12 years	28.7%	35.1%	40.0%	41.1%
13-15 years	23.5%	17.2%	19.0%	20.3%
16 years	34.5%	23.0%	19.7%	19.6%
>16 years	11.3%	17.4%	12.7%	12.2%
<u>Blacks</u>				
<12 years	.4%	8.5%***	9.6%***	10.2%***
12 years	17.0%	37.0%	39.2%	35.3%
13-15 years	29.3%	15.7%	17.0%	19.7%
16 years	43.1%	24.9%	22.5%	21.3%
>16 years	10.1%	13.9%	11.6%	13.5%
<u>Hispanics</u>				
<12 years	0	14.6%***	17.2%***	16.6%***
12 years	24.1%	33.6%	36.8%	36.3%
13-15 years	37.1%	14.6%	15.7%	14.0%
16 years	24.0%	23.4%	18.5%	19.1%
>16 years	14.9%	13.7%	11.7%	14.1%

a. Percentages computed using weighted data.

b. Chi-square test - \*\*\*distribution of educational expectations significantly different from military sample at .01.

presently have (Table 4-8). The results for whites and Hispanics are clear. A significantly larger proportion of those in the military would like schooling beyond their present level, and a significantly larger proportion expects to get that further schooling. Among blacks, the result is somewhat less clear. More of the military sample wants and expects further schooling, but the differences are insignificant at .1 in three of the six cases.

Examining the groups who do want and expect to get more schooling beyond current levels, while excluding those who do not want or expect to take more education, further confirms much of what has been mentioned above. Tables 4-9 and 4-10 show levels of education desired and expected by those who expect to get more schooling. Among whites, using each of the three comparison groups, a far larger proportion of those in the military are found to aspire to more than 12 years of education. A far larger proportion also would like to finish college, but a much smaller proportion wants to finish graduate school. The results for expectations are similar.<sup>3</sup>

3. Note that the percentages for aspirations are based on that subsample that wants more education than present levels regardless of whether they expect to get it, or indeed expect to get any more education than they have already achieved. The percentages for expectations are based on that subsample that expects in fact to get more education than present levels. Nearly all of these people also responded that they would like more education. Thus, the expectations sample is smaller than the aspirations sample. In turn, the fact that a larger percentage expects to complete more than 16 years of school than the percentage that responded that they wanted to complete that much schooling should not be interpreted to mean that a number of people expect to get more education than they would like to get. On the contrary, most of those who aspire to college and nearly all who aspire to graduate school answered that they expected to achieve those aspirations. Differences between aspirations and expectations occur mostly at lower levels of education.

TABLE 4-8  
EDUCATIONAL ASPIRATIONS AND EXPECTATIONS OF MALES 18-22  
WHO DESIRE AND/OR EXPECT TO GET FURTHER EDUCATION<sup>a,b</sup>

	<u>Military</u>	<u>All</u>	<u>Non-Military</u> <u>Not in School</u> <u>Full Time</u>	<u>Working</u>
<u>Whites</u>				
Percent desiring more education	87.7%	78.1%***	74.5%***	73.7%***
Percent expecting to get more education	80.2%	67.6%***	62.2%***	61.3%***
<u>Blacks</u>				
Percent desiring more education	92.0%	87.1%	85.1%	83.2%**
Percent expecting to get more education	86.2%	79.7%	77.0%*	75.3%**
<u>Hispanics</u>				
Percent desiring more education	94.9%	83.2%*	80.5%**	78.3%**
Percent expecting to get more education	88.0%	74.6%*	70.1%**	67.7%**

a. Percentages computed using weighted data.

b. Chi-square test - \*\*\*significantly different from military sample at .01.  
                               \*\*significantly different from military sample at .05.  
                               \*significantly different from military sample at .1.

TABLE 4-9  
LEVELS OF EDUCATIONAL ASPIRATIONS OF MALES 18-22  
WHO DESIRE TO GET FURTHER EDUCATION<sup>a</sup>

Years of Education Desired	Military	All	Non-Military	
			Not in School	Working
			Full Time	
<u>Whites</u>				
<12 years	0	.2%	.2%	.1%
12 years	10.5%	21.2%	24.9%	23.0%
13-15 years	15.8%	15.3%	17.5%	18.3%
16 years	53.8%	34.5%	34.7%	36.2%
>16 years	19.9%	28.8%	22.9%	22.4%
<u>Blacks</u>				
<12 years	0	.8%	1.0%	1.4%
12 years	3.0%	28.9%	30.9%	26.8%
13-15 years	16.1%	11.1%	12.5%	12.5%
16 years	56.7%	35.4%	34.6%	36.3%
>16 years	24.2%	23.8%	21.1%	23.1%
<u>Hispanics</u>				
<12 years	0	4.0%	4.8%	5.2%
12 years	8.0%	29.7%	33.3%	31.0%
13-15 years	21.1%	13.0%	13.8%	13.6%
16 years	49.2%	31.8%	30.0%	29.1%
>16 years	21.7%	21.4%	18.1%	21.2%

a. Percentages computed using weighted data.

TABLE 4-10  
LEVELS OF EDUCATIONAL EXPECTATIONS OF MALES 18-22  
WHO EXPECT TO GET FURTHER EDUCATION<sup>a</sup>

<u>Years of Education Expected</u>	<u>Military</u>	<u>All</u>	<u>Non-Military</u>	
			<u>Not in School Full Time</u>	<u>Working</u>
<u>Whites</u>				
<12 years	.6%	1.9%	2.4%	1.4%
12 years	14.6%	17.7%	20.9%	19.9%
13-15 years	28.1%	21.4%	25.3%	27.5%
16 years	42.7%	33.6%	31.1%	31.4%
>16 years	14.0%	25.5%	20.2%	19.8%
<u>Blacks</u>				
<12 years	0	3.4%	4.0%	4.9%
12 years	6.0%	30.1%	31.3%	24.6%
13-15 years	33.2%	18.6%	21.2%	25.0%
16 years	49.3%	30.7%	28.7%	27.8%
>16 years	11.6%	17.2%	14.9%	17.7%
<u>Hispanics</u>				
<12 years	0	7.7%	9.1%	8.8%
12 years	15.7%	27.9%	31.4%	28.5%
13-15 years	40.1%	17.0%	19.1%	17.1%
16 years	27.2%	30.0%	25.0%	26.4%
>16 years	16.9%	17.4%	15.5%	19.1%

<sup>a</sup> Percentages computed using weighted data.

Among blacks, the results are similar to those of the whites but even stronger. More than 75 percent of the black military sample responded that they would like to complete 16 or more years of education, and 60 percent responded that they expected to achieve those goals. In the non-military sample, less than 60 percent expressed a desire for 16 or more years of schooling and less than 50 percent of those who expected to take more education actually expect to get 16 or more years of schooling.

The results for Hispanics conform to the same general pattern. A far larger fraction of the non-military sample neither wants nor expects to get more than a high school diploma. More than 70 percent of those in the military sample aspire to four or more years of higher education in contrast to about 50 percent of the non-military samples. On the other hand, only about 44 percent of the military sample expect to get four or more years of higher education. Among the non-military comparison groups, that fraction is 40-47 percent. In other words, fewer in the military expect to achieve the level of education that they aspire to than is true for those who have never served.

Another question asked of the respondents was, "Do you expect to be in school five years from now?" Both for those who aspire to and for those who expect to get more education, responses to this question were cross-tabulated to compare the military with each of the three comparison groups. See Table 4-11. The results are quite clear. A far larger proportion of those in the military expect to be in school five years into the future. This finding might be interpreted in two ways. First, responding positively might be an indication of seriousness of purpose. Those who expect to be in school are affirming that they really do expect to get more education.



TABLE 4-11  
PROPORTIONS OF MALES 18-22  
DESIRING AND/OR EXPECTING TO GET FURTHER EDUCATION  
WHO EXPECT TO BE IN SCHOOL FIVE YEARS FROM SURVEY DATE<sup>a,b</sup>

			Non-Military	
			Not in School	
	<u>Military</u>	<u>All</u>	<u>Full Time</u>	<u>Working</u>
Percent Desiring Further Education Who Expect to be in School in Five Years				
Whites	49.6%	26.2%***	24.0%***	23.4%***
Blacks	58.1%	36.1%***	36.9%***	36.3%***
Hispanics	52.7%	39.3%	37.1%	36.7%
Percent Expecting Further Education Who Expect to be in School in Five Years				
Whites	53.8%	29.4%***	27.4%***	27.4%***
Blacks	60.0%	37.2%***	38.4%***	39.4%***
Hispanics	55.1%	41.4%	39.6%	39.1%

a. Percentages computed using weighted data.

b. Chi-square test - \*\*\*significantly different from military sample at .01.

That the military members expect in greater numbers to be in school in five years further differentiates them from the non-military. Second, those in the military are more likely to have to delay their education than those who are in the civilian labor market or in school. Thus, many of those in the civilian sector may expect to have completed their education within the following four years.

The final step in the analysis is to see whether the univariate results so far described hold up in a multivariate context. Taking account of other factors regarding background and other personal characteristics, do educational aspirations and expectations differentiate those in the military from those who are not serving? For this purpose, discriminant analysis was used. Table 4-12 reports results for discriminant functions derived using 24 background variables and personal characteristics including educational expectations as discriminators. The military group is compared in turn to each of the three non-military groups for all three racial groups. The coefficients reported are standardized coefficients. Accordingly, their relative size expresses the relative importance of the various variables in discriminating among the three groups. In the three white equations, educational expectations is clearly the most important discriminator. For Hispanic, expectations is also the most important discriminator in all three cases. For blacks, it is the key discriminator when the military members are compared to non-military men in the civilian labor force. It is the second most important discriminator in the other two comparisons. Results for educational aspirations, not shown here, are similar. Thus, the results of the univariate analysis do hold up in the multivariate context as well.

TABLE 4-12  
TWO GROUP DISCRIMINANT FUNCTIONS  
COMPARING MILITARY AND NON-MILITARY MEN 18-22  
WITH RESPECT TO SELECTED SOCIOECONOMIC CHARACTERISTICS<sup>a,b</sup>

Variable	COMPARISON GROUPS									
	Whites			Blacks			Hispanics			
	All Non-Military	Non-Military Not in School	Non-Military Working	All Non-Military	Non-Military Not in School	Non-Military Working	All Non-Military	Non-Military Not in School	Non-Military Working	Non-Military Working
EDEXP	-.87	-.93	-.09	-.38	-.41	-.41	-.45	-.50	-.44	-.44
AGE	-.49	-.43	-.40	-.36	-.32	-.30	-.34	-.33	-.32	-.32
COMMIT	-.13	-.11	-.10	-.10	-.06	-.11	-.14	-.12	-.12	-.12
ED	.68	.66	.67	.09	.05	.08	.21	.20	.21	.21
EDPAR	-.00	-.04	-.07	-.07	-.10	-.19	-.17	-.21	-.07	-.07
EDPROG	.30	.26	.19	.07	.03	-.00	.28	.15	.15	.15
FAW14	.24	.22	.26	.20	.15	.25	.12	.14	.12	.12
HEALTH	.03	.01	-.05	.09	.08	-.08	.24	.27	.25	.25
KOMW	-.10	-.08	-.04	-.19	-.19	-.19	.09	.06	.07	.07
MARRY	-.25	-.23	-.21	-.46	-.43	-.33	-.10	-.04	-.01	-.01
OCCBLUE	-.09	-.11	-.10	-.13	-.11	-.25	-.17	-.22	-.27	-.27
OCCFARM	.07	.06	.07	.06	.07	.02	.02	.04	.05	.05
OCCMILI	-.24	-.24	-.22	-.16	-.18	-.25	-.21	-.31	-.27	-.27
OCCPROF	.10	.08	.09	.09	.05	.12	.03	.01	-.09	-.09
OCCSALE	.03	.01	.02	-.07	-.07	-.11	-.19	-.19	-.21	-.21
PROBS	-.09	-.09	-.10	.11	.14	.13	-.36	-.32	-.39	-.39
READING	-.11	-.06	-.02	-.35	-.32	-.38	-.31	-.26	-.32	-.32
ROTSKALE	-.08	-.07	-.07	-.08	-.07	-.12	-.13	-.13	-.13	-.13
SIBLINGS	-.13	-.12	-.11	-.17	-.17	-.13	.20	.15	.13	.13
SOUTH	-.00	-.00	.01	-.17	-.15	-.08	.02	.03	.11	.11
USBORN	-.11	-.13	-.12	.18	.10	.20	.40	.38	.44	.44
URBAN14	-.15	-.17	-.15	-.08	-.12	-.10	.01	.00	.02	.02
VOCLINE	-.33	-.31	-.30	-.27	-.29	-.32	-.21	-.12	-.08	-.08
WORKMOM	-.11	-.11	-.08	-.07	-.08	-.05	.27	.35	.37	.37
Centroid- military	-1.07	-1.01	-1.00	-.92	-.86	-.77	-1.03	-1.00	-.97	-.97
Centroid- non-military	.08	.09	.10	.13	.14	.19	.09	.11	.14	.14
Canonical correlation	.29	.30	.32	.34	.34	.38	.31	.33	.36	.36
Wilks' lambda	.92***	.91***	.90***	.88***	.88***	.85***	.91**	.89**	.87**	.87**

<sup>a</sup> Computations based on weighted data

<sup>b</sup> Chi-square test - \*\*\*significant at .01.

\*\*significant at .05.

### 3. Disaggregation by Branch of Service

The extent to which results presented above differ across branches of service is explored in Tables 4-13 to 4-16. No attempt was made to disaggregate the Hispanic sample because of its small size. The results for blacks should be considered tentative as well, because of small sample sizes. Individuals serving in the Marine Corps are excluded from the results shown.

The Tables reveal expected patterns. Both whites and blacks in the Army have lower levels of education than their counterparts in the Navy, who in turn have lower levels than those in the Air Force (Table 4-13). The same rank ordering of the three services prevails for both aspirations and expectations.<sup>4</sup> Confining the military sample to the Army alone (the low ranking service) and comparing aspirations and expectations of those in the Army to those who have never served in any branch (Tables 4-1 to 4-4) still shows mean aspirations and expectations for military members exceeding those for non-military members for both blacks and whites. While this finding could hardly be otherwise for blacks, since the overwhelming majority of blacks in the military sample are in the Army, it need not have been the case for whites.

Examining the distribution of aspirations and expectations (Table 4-15) tends to confirm the finding that the members of the Army have lower educational goals than is true of those in the Navy or Air Force, but that their aspirations and expectations exceed those of their civilian

4. One exception is expectations for blacks, excluding those with more than 12 years of education. The figure there for the Navy is greater than that for the Air Force.

TABLE 4-13  
 MEAN LEVELS OF EDUCATION, EDUCATIONAL ASPIRATIONS,  
 AND EDUCATIONAL EXPECTATIONS OF MALES 18-22  
 SERVING IN THE ARMED FORCES, BY BRANCH OF SERVICE<sup>a</sup>

	<u>FULL SAMPLE</u>					
	<u>Whites</u>			<u>Blacks</u>		
	<u>Army</u>	<u>Navy</u>	<u>Air Force</u>	<u>Army</u>	<u>Navy</u>	<u>Air Force</u>
Education	11.37	11.65	12.06	11.74	12.00	12.56
Educational Aspirations	14.88	15.19	15.65	15.48	15.93	16.32
Educational Expectations	14.11	14.53	14.86	14.61	15.43	15.60
Sample Size	202	177	132	105	14	25

EXCLUDING THOSE WITH MORE THAN 12 YEARS EDUCATION

	<u>Whites</u>			<u>Blacks</u>		
	<u>Army</u>	<u>Navy</u>	<u>Air Force</u>	<u>Army</u>	<u>Navy</u>	<u>Air Force</u>
Education	11.29	11.55	11.90	11.68	11.92	12.00
Educational Aspirations	14.84	15.13	15.45	15.44	15.92	16.29
Educational Expectations	14.05	14.44	14.58	14.55	15.54	15.29
Sample Size	194	167	114	100	13	17

<sup>a</sup>Means computed using unweighted data.

TABLE 4-14  
EDUCATIONAL CHARACTERISTICS OF MALES 18-22  
SERVING IN THE ARMED FORCES, BY BRANCH OF SERVICE<sup>a</sup>

	Whites			Blacks		
	<u>Army</u>	<u>Navy</u>	<u>Air Force</u>	<u>Army</u>	<u>Navy</u>	<u>Air Force</u>
Percent with High School Diploma or Equivalent	77.0%	87.1%	98.5%	91.5%	100.0%	100.0%
Percent College Preparatory High School Program	19.4%	22.2%	26.9%	28.3%	14.3%	56.0%
Percent General High School Program	64.2%	55.1%	54.6%	55.7%	35.7%	40.0%
Percent Vocational High School Program	12.9%	18.2%	17.7%	13.2%	42.9%	4.0%

<sup>a</sup>Percentages computed using unweighted data.

TABLE 4-15  
EDUCATIONAL ASPIRATIONS AND EXPECTATIONS OF MALES 18-22,  
SERVING IN THE ARMED FORCES, BY BRANCH OF SERVICE<sup>a</sup>

Years of Education Desired	Whites			Blacks		
	Army	Navy	Air Force	Army	Navy	Air Force
<12 years	.5%	1.1%	.8%	0	0	0
12 years	22.8%	21.3%	10.6%	12.3%	0	0
13-15 years	20.8%	10.1%	12.9%	17.9%	14.3%	4.0%
16 years	42.1%	48.9%	50.0%	50.9%	71.4%	68.0%
>16 years	13.9%	18.5%	25.8%	18.9%	14.3%	28.0%
Years of Education Expected						
<12 years	2.5%	4.0%	.8%	1.0%	0	0
12 years	31.8%	22.7%	21.2%	19.2%	7.1%	8.0%
13-15 years	29.9%	23.9%	23.5%	34.6%	28.6%	16.0%
16 years	26.4%	38.6%	37.1%	36.5%	50.0%	60.0%
>16 years	9.5%	10.8%	17.4%	8.7%	14.3%	16.0%

<sup>a</sup>Percentages computed using unweighted data.

TABLE 4-16  
EDUCATIONAL ASPIRATIONS AND EXPECTATIONS OF MALES 18-22  
SERVING IN THE ARMED FORCES WHO DESIRE AND/OR  
EXPECT TO GET FURTHER EDUCATION, BY BRANCH OF SERVICE<sup>a</sup>

	<u>Percent Desiring More Education</u>	<u>Percent Expecting to Get More Education</u>
<u>Whites</u>		
Army	89.6%	81.2%
Navy	84.3%	79.2%
Air Force	88.6%	77.3%
<u>Blacks</u>		
Army	90.6%	84.0%
Navy	100.0%	92.9%
Air Force	96.0%	88.0%

<sup>a</sup>Percentages computed using unweighted data.



counterparts. Comparison with Tables 4-6 and 4-7 shows that among whites in the military, those in the Air Force have college degree or graduate school aspirations and expectations exceeding those of the people in the non-military samples. On the other hand, those whites in the Army have college degree or graduate school aspirations exceeding those of the non-military sample, but expectations of college or graduate school which lag slightly behind those of the full non-military sample. Still, a far larger proportion of whites in the Army aspire to and expect to get some education beyond a high school diploma than is true of those who have never served. Among blacks, those in the Army as well as those in the other services have both aspirations and expectations of college degree or graduate school in far greater proportion than is true of those in the civilian sector.

Finally, Table 4-16 shows that the Army compares favorably with the other services with respect to aspirations and expectations when present level of education is taken into account. A somewhat larger proportion of whites in the Army, as compared to the Navy and the Air Force, aspire to and expect to get more education than they currently have. For all three services, a larger proportion wants to and expects to get further education than is true of the non-military group.

#### 4. Conclusion

In this chapter we have examined differences between young men 18-22 in the military and young men of the same ages in the civilian sector who have never served in the military with respect to education levels, educational aspirations and educational expectations. Several noteworthy

points emerge. Among whites, the military group has less education than the civilian group. However, the military group contains more high school graduates than the civilian group. Further, when the samples are confined to those having 12 or fewer years of education, the military group averages more education, not less. Finally, because the sample is truncated at age 22, and because military service is an alternative to school for people in the sample, the finding of a greater mean education level for the non-military group is not surprising. In short, if amount of education is taken as an index of the intellectual quality of people, it is difficult to argue that the military attracts much lower quality than the average. It is particularly difficult to argue that the quality of those serving is lower than average when the civilian group being compared excluded those who have gone on directly from high school to college and graduate school. The results for blacks and Hispanics are much clearer than those for whites. Those blacks and Hispanics who join the service are (were as of 1979) clearly superior to the average of their age group, when education is used as the criterion of quality.

Having noted that the quality of those serving compares quite well to that of the population, a fact noted by Kim and others, we should reiterate the point made in Chapter 1 that this does not mean that the quality of those serving is adequate to the mission of the armed services. Even higher quality individuals may be necessary, given the nature of the job they are called on to do. The facts above, then, do not provide a counterargument to the oft heard complaint that those enlisting are of insufficient quality.

The most interesting results of this research concern educational aspirations and expectations. We find that members of all three racial groups in the military desire on average significantly more years of schooling than their civilian counterparts. We also find that the military members on average actually expect to get more years of schooling. These results hold even when the civilian group includes those who have gone on directly from high school to college. They hold more dramatically when the college group is excluded. They also hold in the context of a multivariate model.

Several inferences may be drawn from these results for aspirations and expectations. First, while education level is the most often cited quality measure, educational aspirations and expectations may also be regarded as indicators of quality. Those who are strongly interested in acquiring more education are likely to be of higher intellectual quality than those who are not interested. Thus, the results for aspirations and expectations are another indication that those in the military are equal or superior to the average of their civilian contemporaries.

Second, the results for aspirations and expectations provide a bit of evidence relevant to the debate over whether reinstitution of the GI bill would be an important recruiting tool. Without the GI bill, the military apparently already attracts many of those who wish to, and expect to, further their education. A large proportion of those who join apparently do not look on military service as more than a temporary break in their education, even though they cannot now look forward to GI bill benefits. Were the GI bill reinstituted, those who now join would receive educational benefits which would make it cheaper to complete their

education. We find that the gap between educational aspirations and educational expectations is wider for the military group than for the civilian group. That gap would probably narrow to the average were educational benefits available. Such a program might also improve the job satisfaction of those in the military.

The crucial question is not whether a revived GI bill would be used, however, but rather whether reinstituting the GI bill would result in the recruitment of higher quality enlistees. This is a question of elasticity for which we presently have no direct answer. It is possible that reintroduction of post service educational benefits would attract many whose educational aspirations exceed even those of the people who now join. Still, one must keep in mind that military service already attracts people with relatively high educational aspirations and expectations. Our indirect answer to the question of the efficacy of GI bill benefits as a recruiting tool is that it probably would not help as much in recruiting high quality people as would alternative ways of spending the same money.

One further point should be made. Because the educational aspirations of those in the military are relatively high, and because the opportunity costs of getting higher education rise with age, programs directed at making it easier and cheaper for military members to pursue their educational goals while in the service might be instrumental in increasing retention. In contrast, programs to provide post-service education benefits, given the apparently high educational aspirations of service members, are likely to discourage retention rather than promote it.

## CHAPTER 5

### JOB PROBLEMS AND JOB CHARACTERISTICS

In this chapter we first investigate the extent of difficulties in locating a good job reported by civilian workers and by military personnel. Second, we compare perceptions of the characteristics of the jobs these two groups presently hold. Each of these discussions includes data on the military sample which is disaggregated by branch so that comparisons can be made not only between servicemen in each branch and civilian workers, but among the four branches as well.

Two purposes are served by this analysis. First, the conventional wisdom is that the military is not the first occupational choice of many who ultimately enlist. However, civilian workers may not be successful in finding their choice of jobs either. Are the experiences of the two groups in fact similar? It is generally believed, additionally, that high unemployment rates among teenagers are a significant factor in explaining enlistments in the all volunteer force. Some studies support this view.<sup>1</sup> While it would seem likely that other, possibly less significant, problems in locating a good job would also characterize the enlistment decision, we know of no study which compares problems in finding a good job between those who select the military and those who settle on

1. See, for example, David W. Grissmer, "The Supply of Enlisted Volunteers in the Post-draft Environment: An Analysis Based on Monthly Data, 1970-1975," in Richard V. L. Cooper, Defense Manpower Policy: Presentations from the 1976 Rand Conference on Defense Manpower, The Rand Corporation, R-2396-ARPA, Santa Monica, CA, 1979, pp. 100-115.

civilian jobs. Even those studies which deal with unemployment effects on enlistments do so in an aggregated fashion. Some understanding of job search problems may be of help to recruiting efforts and should also shed some light on the comparative quality of those who enlist because job search experience can be regarded as an indicator of manpower quality. A finding that the experiences of military personnel are worse than the comparable civilian sample would lend support to the frequently expressed opinion that the military is enlisting a relatively low quality force.

The second subject addressed by this chapter concerns the conception, or possible misconception, that civilian and military jobs are inherently so different that worker perceptions of the characteristics of these jobs would be distinctly different. For example, those who would point to the necessary integration of tasks in a combat unit would doubtless expect differences between servicemen and civilians in the perceived autonomy offered by their respective jobs. This proposition is addressed here. Similarly, the conventional wisdom holds that the characteristics of Air Force jobs are more like those of civilian jobs than the other branches. Do perceptions of the individuals themselves bear out this contention? Again, some understanding of these differences, if they exist, may be of value to recruiters. Also, they may reinforce, or correct, impressions about the opportunities offered by military jobs in comparison to civilian.

#### 1. Problems in Finding a Good Job

Respondents to the NLS were read the following statements: "We're trying to find out the main reasons why many young people your age have trouble getting a good job. Have any of the following things ever caused

you any problems in getting a good job--

1. Lack of transportation?
2. Discrimination on the basis of race?
3. Discrimination on the basis of nationality?
4. Discrimination on the basis of sex?
5. Discrimination on the basis of age?
6. A problem with English?"

Respondents were also asked to name any other problems in getting a good job that they had experienced. As was pointed out in the introduction, analysis of experiences with these problems will identify the extent of job search difficulties of military as compared to civilian workers.

Such analysis may provide insights into the effects of these problems on the enlistment decision. What is perhaps the key job problem influencing enlistments, unemployment, is not addressed here. That relationship is documented elsewhere, as we have noted. We focus instead on other difficulties experienced in the job search. These difficulties are of interest independent of any data on the individual's actual experience with unemployment or the unemployment levels in the immediate area. Although unemployment affects enlistments, it is only one of a larger set of labor market variables which may influence the decision to enlist. It should be noted, in addition, that the job problems listed above might be experienced independent of any spells of unemployment. A person who is continuously employed might well be regularly involved in a search for a better job and might experience these problems during that search.

There are reasons to believe our handling of the data may on the one hand overstate the magnitude of the job search problem. On the other

hand, we may understate the problem. First, we address the possibility of an understatement. The reader will note that we include only those presently working among the civilian sample. Those who are experiencing the greatest job search difficulties, those who are unemployed at the time of the survey, are not included in this analysis. Similarly, we do not include those whose difficulties in the past have been so great as to cause them to give up their search and drop out of the labor force. Thus there is undoubtedly an understatement of the difficulties experienced by some civilians for this reason. On the other hand, some number of our sample of employed civilians likely have been looking for a better job during the time individuals in the military sample were in the service and essentially inactive in the civilian labor market. There is the possibility that the civilian's continuous exposure to the market during the time his contemporaries were in the military would result in more frequent opportunity to encounter problems in finding a good job. Thus, there is the possibility of an overstatement of civilians' job search problems in comparison to the military sample. However, the high unemployment rates of this age group lead us to believe that the possibility of an understatement of civilians' difficulties is much more likely than an overstatement.

Table 5-1 includes the six specific problems listed above plus "other" problems. It shows six comparison groups for which tests were made for statistical differences in the percentage of individuals reporting problems. Age discrimination is a problem cited by 39 to 54 percent of the comparison groups. This category is followed by "other" problems at 30 to 39 percent and transportation problems at 22 to 44 percent of those responding. About



TABLE 5-1  
PERCENT "YES" RESPONSES TO REASONS  
FOR PROBLEMS EXPERIENCED IN FINDING A GOOD JOB,  
MEN 17-22, CIVILIAN AND MILITARY<sup>1,2</sup>

<u>Problem</u>	<u>Civilian Private and Government Workers</u>			<u>Enlisted Military</u>		
	<u>Total</u> (a)	<u>White</u> (b)	<u>Black</u> (c)	<u>Total</u> (d)	<u>White</u> (e)	<u>Black</u> (f)
Transportation	28	22	42 <sup>b</sup>	36 <sup>a</sup>	32 <sup>b</sup>	44 <sup>e</sup>
Race Discrimination	10	4	21 <sup>b</sup>	9	5	21 <sup>e</sup>
Nationality Discrimination	6	1	11 <sup>b</sup>	6	3 <sup>b</sup>	11 <sup>e</sup>
Sex Discrimination	4	4	7 <sup>b</sup>	5	5	6
Age Discrimination	41	39	43	52 <sup>a</sup>	51 <sup>b</sup>	54 <sup>c</sup>
Difficulty with English	6	2	5 <sup>b</sup>	4 <sup>a</sup>	2	4
Other	30	30	26	37 <sup>a</sup>	37 <sup>b</sup>	30 <sup>e</sup>
Sample Size <sup>3</sup>	1967	1223	409	787	577	156

<sup>1</sup>Superscript "a" means there is a statistical difference at 10 percent between the entry in that column and column (a). Similarly for superscripts "b," "c," and "e." Tests were made for differences between the following columns only: (a) and (d), (b) and (c), (b) and (e), (c) and (f), and (e) and (f).

<sup>2</sup>Total column includes men not classified as "white" or "black."

<sup>3</sup>Minimum number responding to all questions. Total column includes men not classified as "white" or "black."

20 percent of the blacks report experiencing racial discrimination in their job searches. All other cells in the table are 11 percent or lower.

When the total military and civilian samples are compared (column (a) vs. column (d)) there are statistical differences for four categories of problems.<sup>2</sup> Servicemen have experienced more difficulty with transportation, age discrimination, and "other" problems, but report fewer instances where difficulties with English have been experienced during job search. Particularly in the two categories that are cited most often and appear to be free of any bias based on the screening of potential recruits--transportation and age discrimination, the military sample has had much more difficulty. Across all problems listed as well, it is evident that people presently in the military have faced problems in finding a good job more frequently than civilian workers their age. This finding is even more apparent when one realizes the lower frequency of responses in the military to difficulties with English may reflect the military screening process.

Comparisons between whites and blacks, both military and civilian, are not too surprising. Among civilians, higher percentages of blacks report problems in five of the seven categories (column (b) vs. column (c)). Among those in the military, blacks have higher percentages than whites in four categories and are lower in one (column (e) vs. column (f)). When blacks in the military are compared with civilian black workers, only one

2. These comparisons use unweighted data. Because the military was over sampled, the choice of unweighted data means the military sample is relatively too large. The use of weighted data we argue, however, would fail to reveal differences that actually exist.

difference appears; blacks in the military report experiencing statistically more frequent age discrimination. Comparisons across the two groups of whites show, quite conclusively, that those in the military have experienced more problems finding a good job.

These results in total indicate that servicemen have experienced frequent job search difficulties in comparison to their civilian peers. Consistent with the view that the services are enlisting good quality blacks, the results indicate little difference between the frequency of job search problems as between black military and black civilian workers. The results for whites, too, are consistent with the view that whites in the military are of somewhat lower quality than their civilian counterparts to the extent these problems are indicative of quality.

Comparisons of the frequency of job search problems experienced by civilians and those experienced by members of each branch of the service are reported in Table 5-2. Also shown are differences among the branches. Column (a) from Table 5-1 is repeated for convenience. These results are not disaggregated by race, so it must be noted that the results for the Army are influenced by the large number of blacks in that service.

When comparisons are made with civilian workers, the following results by branch were found. Members of the Army report a significantly greater frequency of job search problems in three of the seven categories; the Army's frequency is lower in one category. Excluding this last category, difficulty with English, where as was pointed out the military screening process undoubtedly is a factor, Army personnel report more than 25 percent higher frequencies of difficulties where statistical differences were

TABLE 5-2  
PERCENT "YES" RESPONSES TO REASONS  
FOR PROBLEMS EXPERIENCED IN FINDING A GOOD JOB,  
MEN 17-22, CIVILIANS AND BRANCH OF SERVICE<sup>1</sup>

Problem	Civilian Private and Government Workers (a)	Enlisted Military			
		Army (b)	Navy (c)	Air Force (d)	Marines (e)
Transportation	28	38 <sup>a</sup>	39 <sup>a</sup>	29 <sup>b,c</sup>	34
Race Discrimination	10	13	4 <sup>a,b</sup>	8 <sup>b</sup>	9
Nationality Discrimination	6	9 <sup>a</sup>	2 <sup>a,b</sup>	3 <sup>a,b</sup>	7
Sex Discrimination	4	5	4	4	6
Age Discrimination	41	56 <sup>a</sup>	51 <sup>a</sup>	45 <sup>b</sup>	54 <sup>a</sup>
Difficulty with English	6	3 <sup>a</sup>	3 <sup>a</sup>	3 <sup>a</sup>	7
Other	30	32	40 <sup>a,b</sup>	39 <sup>a</sup>	38 <sup>a</sup>
Sample Size <sup>2</sup>	1966	330	208	161	89

<sup>1</sup>Superscript "a" means there is a statistical difference at 10 percent between the entry in that column and column (a). Similarly for superscripts "b," "c," and "d." Tests were made between each pair of columns.

<sup>2</sup>Minimum number responding to all questions.

found. The Navy is evenly balanced with more problems than civilian reported in three categories and fewer in three categories. As with the Army, however, to the extent the English, race and nationality discrimination problems can be explained by the military screening process and racial imbalances in the Navy, the remaining differences take on greater significance and are, in fact, of substantial size. The Air Force has one category of problems with higher frequency than civilians and two lower. Differences in this instance are minimal when compared with Army and Navy differences with civilians. Marine Corps differences may be masked somewhat by small sample sizes, but they do, even then, show two categories higher than civilians and none lower.

In general, the results of Table 5-1 which showed the military with significantly different frequencies of job problems in four categories tend to hold in the disaggregations. Transportation problems are, to an extent, concentrated in the Army and Navy but are also high in the Marine Corps although this last mean is not statistically different from civilians. Age discrimination is significant in three of the four services: Army, Navy, and Marine Corps. Difficulties with English are reported less often in the Army, Navy, and Air Force than they are in the civilian sector. "Other" problems are significant in the Navy, Air Force, and Marine Corps just as they had been for the military in total.

Most of the differences among the services are between the Army and the other branches. Army personnel generally report a greater frequency of problems as was noted above. They report a statistically higher incidence of problems than at least one other branch of the service in the categories of transportation and race, nationality, and age

discrimination; they are statistically lower than one branch in the "other" problems category. Those in the Navy generally report fewer problems than those in the Army; those in the Air Force fewer than those in the Navy. Marines are not statistically different from the other branches in any category of job search problems.

These results by branch are difficult to summarize but probably conform generally to the conventional wisdom. Air Force personnel are most like the civilian work force in their experiences with job search problems. The Army is the most different from the civilians. It has the greatest frequency of job search problems. The Navy and Marine Corps are in between. In inter-service comparisons, the Air Force clearly has people who have experienced fewer problems in finding a good job than those in the Army or Navy. Marine Corps personnel, across the board, find a niche which places them in a position of not being too different from either civilians or from other branches of the service. Small sample sizes may be part of the explanation for this last, mildly surprising, result.

## 2. Job Characteristics

In this section we analyze perceptions of job opportunities, or characteristics, of military and civilian workers. Comparisons among the services are also made. Responses discussed here arise from the survey question: "We would like to know what kinds of opportunities this job offers you. (First/Next), how much opportunity does this job give you (READ CATEGORY)--a minimum amount, not too much, a moderate amount, quite a lot, or a maximum amount?" The categories are:

1. To do a number of different things...
2. To deal with people...
3. For independent thought or action...
4. To develop close friendships in your job...
5. To do a job from beginning to end...
6. How much does your job give you the feeling that the job itself is very significant or important in the broader scheme of things...
7. How much does your job give you the feeling that you know whether or not you are performing your job well or poorly...

Our expectations regarding perceptions of these opportunities were that there would be substantial differences between military and civilian workers. We expected substantial differences between the races as well. Additionally, we expected that disaggregation among the services would result in the identification of frequent differences among the branches with the Air Force least like the other services and most like the civilian sector. The results do not bear out our expectations completely. This is particularly true for the first of our expectations--large differences between the perceptions of opportunities offered by the jobs in the military and civilian sectors. The jobs are viewed differently, but perceptions do not appear to favor one sector over the other.

Table 5-3 reports the mean values for the seven job characteristics identified above for military and civilian workers by race. Responses to these questions, on the average, are between "a moderate amount" and "quite a lot." Two cells for civilians and five for the military have means below the response of "a moderate amount." When the total number of respondents for the military and civilian classifications are considered,

TABLE 5-3  
MEAN RESPONSES REGARDING JOB CHARACTERISTICS<sup>1</sup>  
FOR MEN 17-22

<u>Characteristic</u>	<u>Enlisted Military</u>			<u>Civilian, Private, and Government Workers</u>		
	<u>Total</u>	<u>White</u>	<u>Black</u>	<u>Total</u>	<u>White</u>	<u>Black</u>
	(a)	(b)	(c)	(d)	(e)	(f)
Variety	2.9	2.9	2.7 <sup>b</sup>	3.0 <sup>a</sup>	3.1 <sup>b</sup>	2.6 <sup>c,e</sup>
Deal with People	3.5	3.6	3.4	3.3 <sup>a</sup>	3.5 <sup>b</sup>	3.1 <sup>c,e</sup>
Autonomy	2.9	3.0	2.6 <sup>b</sup>	3.1 <sup>a</sup>	3.2 <sup>b</sup>	2.8 <sup>c,e</sup>
Friends	3.5	3.5	3.4	3.4 <sup>a</sup>	3.4 <sup>b</sup>	3.3 <sup>e</sup>
Complete Task	3.7	3.7	3.6	3.7	3.8	3.5 <sup>e</sup>
Significance of Job	3.3	3.3	3.2	3.2 <sup>a</sup>	3.2	3.1 <sup>e</sup>
Feedback	3.6	3.7	3.4 <sup>b</sup>	3.7	3.8 <sup>b</sup>	3.5 <sup>e</sup>
Sample size <sup>2</sup>	749	546	153	1968	1221	410

<sup>1</sup>Characteristics are coded: 1=minimum amount; 2=not too much; 3=moderate amount; 4=quite a lot; 5=maximum amount

<sup>2</sup>Minimum number responding to each question. Total column includes men not classified as "white" or "black."

<sup>a</sup>Statistically different from entry in column (a) at .10.

<sup>b</sup>Statistically different from entry in column (b) at .10.

<sup>c</sup>Statistically different from entry in column (c) at .10.

<sup>e</sup>Statistically different from entry in column (e) at .10.



(i.e. when columns (a) and (d) are compared) statistical differences are found in five of the seven categories.<sup>3</sup> Civilian sector jobs are seen as offering more variety and autonomy than military jobs, but less opportunity to deal with people, make friends and be significant in the general scheme of things. The mean values in these columns are quite close; in no instance do they differ by more than two-tenths of a point. The fact that statistical differences on the scale of one to five do arise when the means are close together indicates that the responses themselves are quite closely grouped. Otherwise large variances in the responses would have led to a finding of no statistical differences given the closeness of the means.

Disaggregation reveals several differences. Comparisons of whites in the military and in civilian jobs (column (b) vs. column (e)) are similar to the results for the total of each sector. Five statistical differences were found. Military whites perceive greater opportunities in two categories, dealing with people and making friends. They see lesser opportunities in three, variety, autonomy, and feedback.

When comparisons are between the two groups of blacks (column (c) vs. column (f)), three statistical differences in perceptions of job opportunities appear. Blacks in the military sense greater variety and opportunity to deal with people but lesser amounts of autonomy than black civilians.

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3. These data are unweighted, a choice which keeps the military sample larger than it would be if the samples were weighted. Weighted data more often would lead to findings of no statistical differences when in fact they do exist for all the respondents surveyed.

Comparisons within the military by race reveal that mean responses of blacks are always lower; significantly so in three cases; variety, autonomy, and feedback. Racial comparisons within civilian jobs are more striking. Black means are always lower and are statistically significant in every case. Relative to whites in their respective sectors, blacks in the military appear to perceive their jobs as offering them better opportunities than blacks in the civilian sector.

In summary, these findings reveal surprisingly little difference in perceptions of opportunities offered by the job across the military and civilian sectors when one compares mean values of the groups considered here. Statistical differences among the groups are frequent, however. The jobs are viewed differently, with neither military or civilian jobs offering an obvious advantage across the board. White means are always higher than black regardless of military or civilian sector. However, blacks in the military come closer to perceiving their jobs as offering the same opportunities as whites in the military than blacks in the civilian sector do their jobs in that sector. The military appears to offer greater opportunities in the two "people-related" categories of dealing with people and making friends although there is no statistical difference between blacks in the two sectors with respect to the opportunity to make friends. There is an indication, although a statistical difference appears only in one comparison, that military personnel feel their jobs are more significant than civilians do. Civilian jobs, on the other hand, appear to have greater opportunities in two areas more directly related to the work itself--variety and autonomy--and in one

area, feedback, differences appear to favor civilian jobs. There is an exception here, however. Blacks in the military perceive more variety in their jobs than civilian black workers do in theirs. One other area closely tied to the work itself, completing the task, shows almost no differences other than the ones which always appear between blacks and whites.

Table 5-4 reports comparisons of job characteristics between civilians and each branch of the service as well as among the branches. Column (a) is identical to column (d) on the previous table. It is repeated for convenience. In examination of these disaggregated data, it should be remembered that the relative concentration of blacks in the Army may skew the results.

Starting with the Army, we see that these soldiers report statistically greater opportunities than civilians in one instance, dealing with people, and fewer opportunities in four, variety, autonomy, completing the task, and feedback. Navy personnel differ from civilians in only two instances; they sense greater opportunities to deal with people and smaller amounts of autonomy. The Air Force responses are different from civilians in four cases, and they are higher in each instance: dealing with people, making friends, completing the task, and the significance of the job. Marines express views on the opportunities offered by their jobs that are more like civilian responses than any branch. Two statistical differences arise, and in both the Marines are higher: completing the task and significance of the job.

Comparisons among the services are generally in line with expectations with the possible exception of the results for Marines. The Army is lower

TABLE 5-4  
MEAN RESPONSES REGARDING JOB CHARACTERISTICS,  
MEN 17-22, CIVILIAN AND BRANCH OF SERVICE<sup>1,2</sup>

Characteristic	Civilian Private and Government Workers (a)	Enlisted Military			
		Army (b)	Navy (c)	Air Force (d)	Marines (e)
Variety	3.0	2.8 <sup>a</sup>	3.0 <sup>b</sup>	2.9	2.8
Deal with People	3.3	3.5 <sup>a</sup>	3.6 <sup>a</sup>	3.6 <sup>a</sup>	3.5
Autonomy	3.1	2.8 <sup>a</sup>	2.8 <sup>a</sup>	3.1 <sup>b,c</sup>	3.1
Friends	3.4	3.5	3.4	3.7 <sup>a,b,c</sup>	3.4 <sup>d</sup>
Complete Task	3.7	3.6 <sup>a</sup>	3.7	3.9 <sup>a,b,c</sup>	4.0 <sup>a,b,c</sup>
Significance of Job	3.2	3.2	3.2	3.4 <sup>a,b</sup>	3.6 <sup>a,b,c</sup>
Feedback	3.7	3.5 <sup>a</sup>	3.7 <sup>b</sup>	3.8 <sup>b</sup>	3.7
Sample Size <sup>3</sup>	1968	315	205	161	67

<sup>1</sup>Characteristics are coded: 1=minimum amount; 2=not too much; 3=moderate amount; 4=quite a lot; 5=maximum amount.

<sup>2</sup>Superscript "a" means there is a statistical difference at 10 percent between the entry in that column and column (a). Similarly for superscripts "b," "c," and "d." Tests were made between each pair of columns.

<sup>3</sup>Minimum number responding to all characteristics.

on every characteristic where there is a statistical difference with another branch. It is lower than the Navy with respect to variety and feedback; lower than the Air Force with respect to dealing with people, making friends, completing the task, and significance of the job; lower than the Marine Corps on completing the task and significance of the job. The Navy is lower than the Air Force in perceptions of autonomy, making friends, completing the task, significance of the job, and feedback. Marines express higher perceptions of job opportunities than any other service members in terms of completing the task and significance of the job. They are lower in only one instance: compared to the Air Force, Marines report fewer opportunities to make friends.

In general, these disaggregations reveal some interesting differences among the services with respect to perceptions of job characteristics. The perception of a relative lack of autonomy in the military (as reported on Table 5-3) is concentrated in the Army and Navy. Perceptions of a relative lack of variety and feedback are concentrated in the Army. Feelings about the greater significance of the job among the military are concentrated in the Air Force and Marine Corps. The opportunity to make friends is particularly high in the Air Force. On the other hand, the military's significant advantage in dealing with people stands up in the disaggregations.

In summary, when compared to civilians' perceptions of their jobs, servicemen's job perceptions are remarkably similar. Differences do emerge, but these differences are nearly balanced as between perceptions of greater and lesser opportunities. When the analysis includes branch

of the service, Air Force personnel rate their jobs higher than civilians rate their jobs; Navy and Marine Corps personnel rate their jobs quite close to civilians; Army personnel have clearly lower ratings than civilians. The Marine Corps, as was determined when job problems were discussed in the last section, manages in this analysis as well to find a position which places their perceptions of their jobs quite close to every other group analyzed, including civilians. In short, Army members view their jobs as inferior to civilian perceptions. The results for the other services are equivocal and may even fall in favor of military jobs being superior.

### 3. Conclusions

This chapter has reported on differences between military personnel and civilian workers in problems in finding a good job and differences in the opportunities offered by the job presently held. The results were also disaggregated by branch of the service and race. Age discrimination and transportation difficulties rate as important problems for young people looking for good jobs. Military personnel have experienced these problems, and others, more frequently than civilian workers. However, the results decidedly do not support the conclusion that military personnel have enlisted primarily because of difficulties in locating good jobs in the civilian sector. While these results would appear to agree with the usual finding that high unemployment rates spur enlistments, this study makes it clear that the labor market experiences of those who join the military are not unusual in terms of the difficulties in finding a good job when compared to those experienced by their civilian peer group.

Particularly, when the experiences of blacks are compared to whites, there is evidence that blacks in the military have experiences more close to those of whites in the military than black civilians have had when compared to white civilians. These results, and other comparisons of this chapter, support the often held belief that black servicemen are of relatively good quality in comparison to their black peers while white servicemen are of somewhat lower quality than their white peers.

Those who join the Air Force and the Marines have had experiences with job search that are similar to civilian workers. Army and Navy personnel have experienced somewhat more difficulties than civilian workers, but one must remember that the civilian sample studied here includes only those with jobs. Civilians who were unemployed at the time of the survey or had dropped out of the job market--most surely those with the greatest job search problems--are not included here. Inclusion of these civilians in the sample undoubtedly would make the results for the military, even for the worst case, the Army, appear quite comparable.

Perceptions of the opportunities offered by the jobs presently held in the military and civilian sectors are surprisingly similar. When one considers that most civilian workers of these ages continually and actively attempt to improve their job situation, and undoubtedly are making fairly numerous job changes to improve their situations, the results of this analysis show the perception of opportunities offered by military jobs to be surprisingly good. Although we assume more variety, autonomy, etc. to be good, of course this may not be the case for all workers.

Our expectations had been that military jobs would come off as decidedly second-best. This is far from the case. Our expectations

probably were largely based on the failure to appreciate at first the fact that there are significant numbers of unchallenging, dead-end jobs being performed by workers of this age group in the civilian sector. It is easy to imagine in retrospect civilian jobs that are decidedly inferior to any job the Air Force, in particular, has to offer. Air Force jobs do, in fact, look good when compared to civilian jobs and especially those offered by the Army and to some extent the Navy. Opportunities offered by jobs in the Marine Corps were found to be little different from civilian jobs or those of the other services. Military jobs in particular appear to offer advantages to those who place a high value on "people-related" characteristics.

As was noted above, blacks in the military seem to be of good quality to the extent that fewer job problems indicate good quality. In addition, we find that perceptions of the characteristics of the jobs they hold in the military place them closer to the perceptions of whites in the military than black civilians are to white civilians. The interactions and feedbacks operating between these findings--good quality blacks entering the military and relatively good experiences once in the service as compared to what they might expect in the civilian sector--help explain the attraction of military service for this group.

We conclude that while military personnel have experienced somewhat more difficulty in finding a good job than civilians who are presently employed, the jobs presently held in the military are viewed as offering a range of characteristics at least as positively perceived as those offered by the civilian sector.



## CHAPTER 6

### JOB SATISFACTION: MILITARY vs. CIVILIAN

A comparison of reported levels of job satisfaction by civilian workers and military personnel between the ages of 18 and 22 is the primary concern of this chapter. Analysis of particular racial and ethnic groups--white, black, and Hispanic--as well as branch of service is integrated into the study. Three purposes are served by this analysis. Our first purpose is to determine if military service itself, other things held equal, accounts for the univariate differences in reported levels of job satisfaction between military and civilian workers. Second, and closely related to the first purpose, is an investigation of job satisfaction differences between racial and ethnic groups as well as among military branches. Third, and probably most important, it is useful from a policy perspective to determine if the reported job satisfaction differences between civilian and military workers are due primarily to differences in background or personal characteristics between the two groups of respondents or are due to differences in the characteristics of the jobs themselves. Different policy approaches are suggested by these two possibilities. If those who join the military are inherently different, job satisfaction can be improved by recruiting different people. If root causes of the differences are found in the jobs themselves, it is likely that some measures could be taken to change the nature of the jobs. Such action might be worthwhile if it could be shown that improved

job satisfaction was instrumental in increasing productivity, enhancing retention, boosting morale, or encouraging the enlistment of highly qualified candidates.

Conclusions regarding some of these questions and the determinants of job satisfaction in general can be drawn from this cross sectional analysis. Other conclusions, particularly those involving the effect of job satisfaction or retention and future levels of productivity in the military as evidenced by promotions and pay bonuses, must await additional waves of the NLS data set.

#### 1. Explanation of Job Satisfaction Differences

There may be inherent peculiarities concerning the military as an institution, and military jobs in particular, which make it inevitable that levels of job satisfaction differ between civilian workers and military personnel. Most would agree that there are a plethora of reasons for a finding that job satisfaction is lower in the military. However, a number of reasons also can be advanced which would argue that military job satisfaction should be as high as that of civilians, at least for some individuals.

Foremost among the factors which might cause levels of satisfaction in the military to be lower than those among civilians is the greater difficulty a worker has in leaving the military or changing jobs within the military if he is dissatisfied with his present job. Similarly, military rotation policies can take a person away from a satisfying job against his will and place the individual in a job he enjoys less well. The military, by the nature of its training and deployment requirements,

takes the individual away from family and friends, and this removal together with the unfamiliar surroundings may also affect job satisfaction. To a greater extent than is true with civilian jobs, there is likely to be misinformation or misunderstanding about the nature of military jobs. Some misinformation is probably inevitable given that the transition to a military job entails the start up cost of the new job as well as a change of location and life style. Some misconceptions about military jobs are probably perpetrated by over zealous recruiters as well.

Additional factors affecting job satisfaction in the military could be advanced. The military necessarily will have a smaller range of occupations and a different distribution of those available than the civilian labor markets. To the extent the military isolates a worker from the civilian labor market, perceptions of alternative employment opportunities are restricted and may be perceived from a distance to be better than they actually are. In addition, many military jobs have long and irregular work hours. No overtime pay or shift differential is given after an eight hour day or for night and weekend duty. It should be noted, as well, that there is a less close tie between pay and work performed, either in terms of work effort or occupation. In general, the greater the uncertainties about military jobs and the greater extent to which military jobs differ from the established civilian norms, the greater the likelihood that military personnel will be dissatisfied with their jobs.

On the other hand, for certain individuals the military may offer opportunities that are not found in civilian jobs. Some military

occupations are unavailable in civilian markets. The opportunity to move away from one's home area and to change jobs and locations frequently may be perceived as elements which increase job satisfaction for some. Similarly, satisfaction may be increased by knowing that the vagaries of the civilian labor market do not exist in the military: the job is secure, unemployment is not possible, the basic necessities will be readily available in peacetime, and pay will be adequate and regularly forthcoming based, at least in the short run, on such tangible factors as rank and time in service rather than productivity. In addition, job satisfaction may be derived from less tangible factors such as those which are identified with the view of military service as a "calling," or the feeling that the job is significant.

## 2. Previous Analysis

In their univariate analysis of the first wave of the NLS data, Kim, Nestel, Phillips and Borus reported that "servicemen are lower on every measure of job satisfaction except job security" (12, p. 29). Their finding is consistent across samples of 18 to 21 year old males disaggregated by racial/ethnic group--white, black, and Hispanic. While it is recognized, as we pointed out in the previous section, that "those in civilian employment can change jobs if they are dissatisfied and have an alternative," Kim, et al find the consistently "lower evaluations...surprising in view of the all volunteer policy" (p. 29). In their Preface, however, it should be noted, they are careful to explain that "further refinements of the data, reweighting, and more sophisticated multivariate analysis may yield other results" (p. ii).

It is one of our purposes, as stated in the introduction, to explore the general character of the Kim, et al finding in more detail, using multivariate analysis. The use of multivariate analysis to explore job satisfaction is particularly appropriate in light of recent work by Bartel.

Bartel, after first noting differences between older white and black men in the mean values of reported job satisfaction from earlier NLS surveys, regressed job satisfaction variables on a group of independent variables primarily dealing with labor market characteristics. She concludes that "the sign of the racial differential in job satisfaction cannot be predicted a priori. While blacks do earn lower wages than whites and should therefore be less satisfied, discrimination may have also caused blacks to be satisfied with less" (1, p. 302). Given the results of Kim, et al, and following methodology suggested by Bartel, we attempt to verify, using a multivariate approach, the lower reported levels of job satisfaction among servicemen and attempt to ascertain the determinants, other things held equal, of the differences between servicemen and civilian workers. That is, we attempt to determine if it is true that the sign of the civilian-military differential in job satisfaction cannot be predicted a priori because of certain background or personal characteristics of the military respondents, or because of differences in their perceptions of the elements of job satisfaction which are determinants of total job satisfaction.

### 3. Data

Survey questions on job satisfaction are available in two different forms. One is a measure of "global" job satisfaction. Respondents were

asked: "How do you feel about the job you have now? Do you like it very much, like it fairly well, dislike it somewhat, or dislike it very much?"

A second set of questions asks for responses to ten more specific job satisfaction elements of the present job. Respondents were asked:

"Thinking of your present job, would you say this is very true, somewhat true, not too true, or not at all true?" The respondent was then shown ten cards with the following statements:

1. You are given a chance to do the things you do best...
2. The physical surroundings are pleasant...
3. The skills you are learning would be valuable in getting a better job...
4. The job is dangerous...
5. You are exposed to unhealthy conditions...
6. The pay is good...
7. The job security is good...
8. Your co-workers are friendly...
9. Your supervisor is competent in doing the job...
10. The chances for promotion are good...

We scaled these responses in three ways. First, the four possible responses to each of these questions are simply assigned the values four through one for the responses "like very much" (or very true) through "dislike very much" (or not at all true). This is referred to below as the "index" scale. A second scale assigns a value of one to the two positive responses and zero to the two negative responses; this is identified as the "like-dislike" scale. A third scale assigns a value of one to the response

"like very much" (or very true) and zero to the other three; this is the "very" scale.

#### 4. Results for Military Service

Using the scaling systems described above and focusing initially on the global measure of job satisfaction results for the military and civilian sectors similar to those of Kim, et al were found. See Table 6-1. When the responses were scaled one through four (i.e. using the full index scale) military personnel, both black and white, had the lowest job satisfaction means, 2.59 and 2.58 respectively. Civilian whites and blacks averaged 3.12 and 2.94 respectively. Based on these means, statistical differences (at 10%) were found between civilian whites and blacks, military and civilian whites, and military and civilian blacks. No difference appeared between blacks and whites in the military. Similarly, using the "like-dislike" scale (i.e., assigning one for positive responses, zero otherwise), we found among civilians that 84 percent of the whites and 79 percent of the blacks liked their jobs. This compared to 61 and 64 percent for military whites and blacks, respectively. The "very" scale (i.e. assigning one for like very much, zero otherwise) showed that 33 percent of the white and 23 percent of the black civilians liked their jobs very much while whites and blacks in the military were 19 and 17 percent, respectively. These percentages were statistically different at 10 percent between the races within the civilian sector and within a racial group across the military and civilian sectors. No significant differences were noted between blacks and whites in the military, although the mean values for blacks were higher on both the index and like-dislike scales.

TABLE 6-1  
GLOBAL JOB SATISFACTION MEANS<sup>a, b</sup>

	Civilian		Military	
	White (a)	Black (b)	White (c)	Black (d)
Scale				
Index	3.12	2.94 <sup>a</sup>	2.58 <sup>a</sup>	2.59 <sup>b</sup>
Like-dislike	.84	.79 <sup>a</sup>	.61 <sup>a</sup>	.64 <sup>b</sup>
Very	.33	.23 <sup>a</sup>	.19 <sup>a</sup>	.17 <sup>b</sup>
Sample Size <sup>c</sup>	1230	414	576	160

<sup>a</sup>Superscript "a" means there is a statistical difference at 10 percent between the entry in that column and column (a). Similarly, the "b" identifies a statistical difference between that column and column (b). Differences between columns (c) and (d) were not present. Tests for differences between (a) and (d), and (b) and (c) were not made.

<sup>b</sup>Definitions of each scale are in the text.

<sup>c</sup>Unweighted data, minimum sample size.



Turning to the ten specific elements of job satisfaction listed above, we tested for statistical differences using the index scale and the four groups discussed above. Table 6-2 presents a summary of these results. Comparing first blacks and whites presently in the military, we found no differences in their responses for five of the ten categories. Whites, however, were likely to respond more positively to the job satisfaction elements of "chance to do best," "experiences valuable later," "high job security," and "friendly co-workers." Blacks were more likely than whites to respond that their surroundings were pleasant. Continuing the racial analysis, we compared whites in the military to white civilians and similarly for blacks. With the sole exception of the category good promotion opportunities, white perceptions of these job satisfaction elements were always different between the two sectors with six values higher in the civilian sector and three lower. The pattern of statistical differences and the direction of the difference were exactly the same for blacks as was just described for whites. Thus it appears that each racial group perceives similar differences between job satisfaction elements in civilian as compared to military employment. When this set of results is compared to the global satisfaction results of Table 6-1, it can be seen that the same racial pattern across sectors is found there; military personnel by race are always lower on the global scale than their civilian counterparts.

In order to ascertain which of the specific elements of job satisfaction were most likely to be elements ranked high in the determination of global job satisfaction, a discriminate analysis was used on both the total civilian and total military samples as well as on disaggregated data of

TABLE 6-2  
STATISTICAL DIFFERENCES IN JOB SATISFACTION ELEMENTS,  
MEN 18-22 BY COLOR AND CIVILIAN OR MILITARY STATUS<sup>a, b</sup>

Job Satisfaction Element	Civilian		Military	
	White (1)	Black (2)	White (3)	Black (4)
Chance To Do Best	2.64	2.85	2.66 <sup>1</sup>	2.46 <sup>2, 3</sup>
Pleasant Surroundings	2.99	3.01	2.29 <sup>1</sup>	2.54 <sup>2, 3</sup>
Experience Valuable Later	2.92	2.92	2.82 <sup>1</sup>	2.65 <sup>2, 3</sup>
Dangerous	2.23	2.13 <sup>1</sup>	2.72 <sup>1</sup>	2.65 <sup>2</sup>
Unhealthy Conditions	1.88	1.92	2.26 <sup>1</sup>	2.15 <sup>2</sup>
Income Good	2.87	2.71 <sup>1</sup>	2.03 <sup>1</sup>	2.08 <sup>2</sup>
High Job Security	3.13	2.87 <sup>1</sup>	3.39 <sup>1</sup>	3.15 <sup>2, 3</sup>
Friendly Co-Workers	3.68	3.60 <sup>1</sup>	3.45 <sup>1</sup>	3.26 <sup>2, 3</sup>
Competent Supervisor	3.53	3.44 <sup>1</sup>	3.23 <sup>1</sup>	3.17 <sup>2</sup>
Good Promotion Opportunities	2.77	2.81	2.82	2.80
Sample Size <sup>c</sup>	1212	405	544	153

<sup>a</sup>Scale is: 4=very true; 3=somewhat true;  
2=not too true; 1=not at all true

<sup>b</sup>Superscripts "1," "2," and "3" mean there is a statistical difference at 10 percent between the column where the superscript is shown and the column identified by the superscript. Tests for differences between (1) and (4), and (2) and (3) were not made.

<sup>c</sup>Unweighted data, minimum sample size for any element.

these groups by race. Using global satisfaction as the dependent variable and the ten job satisfaction elements as independent variables, five of the job elements were shown to be important discriminators of degrees of global job satisfaction across most groups. The elements were, in roughly their order of importance across all groups, chance to do best, experience valuable, pleasant surroundings, good income, and high job security. These variables, in turn, were entered as independent variables in job satisfaction regressions along with other background and labor market data as in the approach reported by Bartel.

All variables used in the regression analysis including the three job satisfaction indices are described in Appendix 6-A. Means and standard deviations for these variables by civilian and military sector are included in Table 6-3. In the regression analysis weighted data were used. The sample size is 2263 with 2046 in the civilian sector and 217, or 9.6 percent, in the military.<sup>1</sup>

Table 6-3 shows statistical differences in means (at 10 percent) for the military and civilian samples. The mean values for the three indices used to measure job satisfaction can be compared to the means in Table 6-1 although racial breakdowns are not included in Table 6-3. Statistical differences between the two sectors are again evident in Table 6-3, but the

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1. These sample sizes are different, particularly with respect to the relative percentages in the civilian and military sectors, than those unweighted data reported in Tables 6-1 and 6-2. Those tables are based on over 2300 respondents and show about 30 percent in the military sample. Our divisor using weighted data is designed to keep the sample at approximately 2300, but missing values in the data set reduce the sample below that level in the regression equations.

TABLE 6-7  
MEANS AND STANDARD DEVIATIONS  
FOR JOB SATISFACTION REGRESSIONS  
FOR MALES 18-22 BY CIVILIAN AND MILITARY<sup>a,b,c</sup>

<u>Variable</u>	<u>Civilian Private and Government Workers</u>	<u>Military</u>
Index	3.10 (.79)	2.75* (.93)
Like/Dislike	.83 (.37)	.67* (.47)
Very	.32 (.47)	.20* (.41)
South	.28 (.45)	.32 (.47)
Health	.03 (.18)	.04 (.20)
Black	.10 (.30)	.21* (.41)
Hispanic	.06 (.23)	.07 (.25)
Married	.12 (.33)	.20* (.40)
Education	11.83 (1.58)	11.66* (.93)
Time on Job	16.22 (45.75)	23.80* (11.75)
Experience	2.90 (1.73)	3.43* (1.32)
Hours	34.69 (14.74)	42.42* (18.80)
Chance To Do Best	2.88 (.96)	2.62* (1.00)
Pleasant Surroundings	2.96 (.92)	2.42* (.96)
Valuable Experience	2.95 (1.04)	2.81* (1.11)
Good Income	2.89 (.89)	2.03* (.91)
High Job Security	3.13 (.90)	3.37* (.84)
Military Service	- (-)	1.00 (-)
Sample Size	2046	217

<sup>a</sup>Weighted Data

<sup>b</sup>Standard Deviation in parentheses.

<sup>c</sup>\*Significant difference between mean values for the two sectors at .10.

size of the differences has been altered somewhat by the use of weights.<sup>2</sup>

Among the variables in Table 6-3 which are used as independent variables in the job satisfaction regressions all but three, South, health and Hispanic, have mean values which are statistically different between the sectors. Members of the military are more likely to be black, to be married, and to sense their job offers large amounts of security. Additionally, they are quite different from the civilian sample in terms of variables closely related to their work. They have worked more months on their present job, have more years of work experience, and worked longer hours during the survey week. On the other hand, civilians have more education and report higher means on the job satisfaction elements of chance to do your best, pleasant surroundings, experience valuable later, and good income. All of the job satisfaction elements reported in Table 6-3 are relatively close to the means for the unweighted data reported on Table 6-2.

Three job satisfaction regressions using each of the indices described earlier as dependent variables are reported on Table 6-4. These regressions contain, in addition, a vector of five parental occupational groups, including the military, in order to control for background differences. Note that each regression includes interactions of each of the independent variables, except the parental occupation groups, with military service. The equations were run in four steps. First we included only background variables: parental occupation, residence in the South at age 14, health, marriage, and education together with their respective military interactions

2. Mean values for the military sample are somewhat higher and this has reduced the sectoral differential by about .15 on the index scale, .05 on the like/dislike scale, and .02 on the very scale.

TABLE 6-4  
JOB SATISFACTION REGRESSIONS  
FOR MALES 18-22<sup>a,b,c,d</sup>

<u>Variable</u>	<u>Index</u>	<u>Like/Dislike</u>	<u>Very</u>
South	.039 (1.16)	.007 (.39)	.043** (2.76)
Military/South	-.010 (.10)	-.025 (.45)	-.020 (.31)
Health	.048 (.60)	.026 (.62)	.025 (.00)
Military/Health	-.249 (1.03)	-.198 (1.60)	.002 (.00)
Married	.126*** (2.67)	.077*** (3.18)	.049* (1.68)
Military/Married	-.194 (1.53)	-.111* (1.71)	-.078 (1.00)
Education	-.006 (.46)	-.011 (1.59)	.005 (.63)
Military/Education	-.005 (.07)	.021 (.63)	-.034 (.84)
Time on Job	-.000 (.05)	.000 (.20)	.000 (.30)
Military/Time on Job	-.005 (.95)	-.003 (1.07)	-.001 (.16)
Experience	-.001 (.03)	-.007 (1.12)	.008 (.95)
Military/Experience	-.002 (.03)	.014 (.50)	-.020 (.59)
Hours	.000 (.14)	-.000 (.16)	-.001 (.91)
Military/Hours	-.000 (.13)	-.000 (.41)	.001 (.32)
Black	-.129** (2.53)	-.025 (.93)	-.080** (2.52)
Military/Black	.150 (1.17)	.068 (1.03)	.084 (1.07)
Hispanics	-.088 (1.36)	-.017 (.51)	-.067* (1.66)
Military/Hispanics	.214 (1.09)	.086 (.85)	.115 (.95)
Chance to Do Best	.234*** (12.36)	.104*** (10.69)	.100*** (8.43)
Military/Best	.027 (.47)	.015 (.52)	-.009 (.25)
Pleasant Surroundings	.180*** (10.01)	.066*** (7.16)	.080*** (7.22)

TABLE 6-4  
JOB SATISFACTION REGRESSIONS  
FOR MALES 18-22<sup>a,b,c</sup>  
(Continued)

<u>Variable</u>	<u>Index</u>	<u>Like/Dislike</u>	<u>Very</u>
Military/Surroundings	-.080 (1.45)	-.035 (1.24)	-.054 (1.59)
Valuable Experience	.088*** (5.28)	.031*** (3.56)	.048*** (4.60)
Military/Experience	.126*** (2.61)	.066*** (2.64)	.007 (.24)
Good Income	.113*** (6.14)	.032*** (3.36)	.075*** (6.55)
Military/Income	-.028 (.49)	.003 (.11)	-.047 (1.36)
High Job Security	.053*** (2.94)	.016* (1.66)	.028*** (2.48)
Military/Security	.055 (.94)	.016 (.53)	.031 (.86)
Military Service	-.271 (.31)	-.454 (.99)	.610 (1.11)
Sample Size	2264	2264	2264
$\bar{R}^2$	.33	.23	.21
F	34.12	21.23	18.73
Constant	1.28	.27	-.69

<sup>a</sup>Equation contains a vector of dummy variables for parental occupation.

<sup>b</sup>Weighted data

<sup>c</sup>\*\*\*Significant at .01

    \*\*Significant at .05

    \*Significant at .10

<sup>d</sup>t-values in parentheses.

(for all but parental occupation). Second, we added time on the job, labor market experience, hours worked, black and Hispanic together with their respective military interaction variables. Third, we added the five job satisfaction elements and their interactions with military service. As a last step we added the military service dummy variable. Adjusted  $R^2$  values after each step were in the following ranges depending on the equation: .01 to .03; .02 to .04; .23 to .33; .23 to .33.<sup>3</sup> The equations were statistically significant at each step. Clearly, the addition of job satisfaction elements increases the explanatory power of the equations a great deal. The inclusion of military service separately as an independent variable adds almost nothing to the  $R^2$  values in any equation.<sup>4</sup>

Several caveats and comments must be discussed before the results are analyzed further. First, the correlation coefficients between the job satisfaction elements and the global satisfaction measure ranged from a high of 48 percent for "chance to do best" to a low of 24 percent for "job security." The correlation coefficients between the job satisfaction elements and their interactions with military service were frequently

3. These results compare favorably with those reported by Bartel. She did not have access to job satisfaction elements. Her reported  $R^2$  values were between four and six percent.

4. In earlier specifications of these equations, before the interactions with military service were included, the military service variable had been significant at 10 percent. In the index equation it was -.509 and in the like/dislike equation it was -.291. In the very equation, military service was +.140 but it was not significant. The interactions reported here apparently capture most of the variation which accounted for the statistical significance of military service in the earlier equations. Still, the size of military service coefficients does not approach zero in any equation reported on Table 6-4.



negative, reaching an extreme value of minus 25 percent between "good income" and "military/security." Military service was negatively correlated with all job satisfaction elements except "job security," reaching an extreme of minus 27 percent with "good income."

It should be noted at this point that we choose to use as a variable in these equations the job satisfaction element "good income" rather than a measure of actual income. Two reasons are advanced for this choice. Most important, the perception of "good income" is a question whose parameters are given. Attempts to use actual pay were confounded by differences in time-rate-of-pay between military and civilians and among civilians. Reasonable adjustments can be made to overcome most of this problem. However, there is a second problem. It became obvious that reported military pay showed considerable inconsistency between respondents of the same rank, time in service, and number of dependents. Military pay computed using these variables and a military pay table for 1979 was tried as a substitute variable but there remained the problem that some military compensation is received in kind.

Other difficulties which narrowed the selection of independent variables were the apparent inappropriateness of some frequently used labor market variables, for example Standard Metropolitan Statistical Area and union membership, when military personnel are included in the equations. Similarly, and perhaps most notably absent from these equations are dummy variables for occupational groups. No cross classification scheme is presently available for categorizing military and civilian occupations.<sup>5</sup>

5. We attempted categorization based on NLS data, after discussing the problems with several people presently working on such schemes. However, it became apparent that our efforts would likely result in sufficient misclassifications to render the results inaccurate.

What, then, do the job satisfaction regressions reveal? The most important finding is that the univariate results of Table 6-1 which showed global job satisfaction in the military to be lower than in the civilian sector do not hold up in this multivariate approach. Differences in mean values of the independent variables together with the implied "return" to these variables and their interactions with military service explain enough of the difference between the two sectors to make the military service variable itself insignificant. The details of these differences between the two sectors are explored in some depth below.

For a statistical perspective, the important question in this: Which of these variables are statistically significant determinants of global job satisfaction and, in turn, given differences in means between these variables in the two sectors, can the differences in the univariate global satisfaction means be explained? From a policy perspective the key question is this: Are the important variables identified ones which relate to the individual's background and thus would necessitate recruiting a different kind of person if job satisfaction levels were to be raised, or are they variables which relate to the perception of the job and thus might be susceptible to changes in the job environment? Statistical analysis of the variables will be discussed below, saving the policy implications for the concluding section.

Our discussion of the statistically important variables proceeds in the manner described in this paragraph. We have noted that the difference between the military and civilian sectors on the index scale is .35 (3.10 - 2.75 in Table 6-1). Now, for example, if education were a statistically significant determinant of global job satisfaction (which it is not in

these regressions) with a slope coefficient of  $+0.10$  and if civilians had one more year of education than military personnel, then we could estimate that an additional year of education for the military would add  $.10$  to their global job satisfaction mean. In this example the lack of equivalent educational attainment in the military explains  $.10$  of the  $.35$  difference, or about 30 percent. Of course this procedure assumes a linear relationship between the variables. The computations are accurate only when evaluations are made at the mean of the independent variable.

The procedures described in the previous paragraph were used to determine, first, which of the independent variables might be important in explaining the univariate results and, second, the extent of their ability to explain the difference in means between the military and civilian sectors. The analysis is not precise, but we believe we can estimate the relative importance of certain independent variables and estimate the extent to which the gap in the univariate analysis would be closed by policies which addressed these independent determinants of job satisfaction.<sup>6</sup>

6. A problem frequently encountered is differences in statistical significance between an independent variable and the variable's interaction with military service. In the case of the variable "valuable experience," both the variable and its interaction are statistically significant at less than  $.01$ . It is apparent in this case that the slope coefficient for those in the military is  $.224$  ( $.088 + .126$ ). For the variable "pleasant surroundings" the case is less clear. The slope coefficient for the variable itself is  $.180$  and statistically significant at less than  $.01$ . The interaction with the military service variable suggests a slope coefficient of  $-.000$  but it is significant at less than  $.20$  ( $t = 1.45$ ). "Pleasant surroundings" is an important determinant for job satisfaction, but it appears that this variable is less important for members of the military even though the test of statistical significance does not meet our standard. In this instance the conservative approach dictates that we subtract the two coefficients and use a value of  $.100$  ( $.180 - .080$ ) for the military sample.

First we investigate the determinants of job satisfaction using the index scale. Both the t-values reported on Table 6-4 and the Beta weights (not shown) indicate that the important independent variables are the job satisfaction elements and, generally, their military interactions as well as married, military/married, black, and military black. Table 6-3 showed that each of these independent variables (excluding the interactions, obviously) had different means in the military as opposed to the civilian samples.

Beginning with the job satisfaction elements and taking them in order, we are able to identify several important differences between the sectors. For the "chance to do best" variable we had found a difference in means of .26 (2.88 - 2.62) between the two sectors in Table 6-3. The slope coefficient for this variable in the index column of Table 6-4 is .234 and significant. Its military interaction is positive but insignificant. We estimate, then, that if the military were able to raise the mean response on this variable to the civilian level, global job satisfaction would rise by .06 (.234 x .260). The variable "pleasant surroundings" had a difference in means between the sectors of .54 (2.96 - 2.42) and a significant coefficient of .180, but the military interaction was -.080 and not quite significant by our standards. As indicated in footnote 6, we feel the conservative approach is to subtract the two slope coefficients. We, therefore, estimate that if the military were able to increase the perception of pleasant surroundings to the civilian level, global job satisfaction would increase by about .05 (.54 x .10). The variable "valuable experience" is an interesting one in the job satisfaction context. Civilians report a significantly higher mean on this variable than the military, 2.95 to 2.81.

The slope coefficient for the interaction of this variable with military service is larger than for the variable itself, .126 as opposed to .088, and significant. Thus, if there were an increase to the civilian level in the perception that military jobs were a valuable experience, global job satisfaction would rise .03 ( $.214 \times .140$ ). The "good income" variable analysis is rather straightforward; a mean difference of .86 and a coefficient of .113 indicate the potential for an increase in global satisfaction of nearly .10. The mean for the "job security" variable is already higher in the military, contributing a little over .01 ( $.24 \times .053$ ) to the military global satisfaction mean over that for the sample as a whole. This is obviously an element which is already performing well from the military perspective, but of course it may be that it is being purchased at a relatively high cost considering its small effect on global job satisfaction.

The "married" variable is the most interesting determinant of job satisfaction uncovered in this analysis. The military sample is more likely to be married, 20 percent to 12 percent. Economists, of course, would point to the dependents allowance as an important reason for this difference. Being married, the regression coefficient tells us, contributes .126 to job satisfaction and the result is significant. The interaction of married and military service, however, has a coefficient of  $-.194$  and is close to being significant by our standard (t-value of 1.53).<sup>7</sup> Our data suggest to us the likelihood that being married and being in the military combine to have little to no effect on job satisfaction. It appears to us,

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7. Several reasons were advanced in the introduction that might explain why being married in the military may not be the important enhancer of job satisfaction that it is in civilian jobs. Foremost among these reasons are probably deployments, changes of duty station, and more irregular hours.

therefore, that any policies which might affect the percentage of military men who are married would have a negligible influence on global job satisfaction. On the other hand, policies which would improve the outlook of those military men who are married could have a significant positive effect on job satisfaction.

Findings similar to those described for the "married" variable appear when the "black" variable is examined. There are about twice as many blacks in the military sample as in the civilian, 21 percent to 10 percent. In the regression equation, the variable "black" is a significant determinant of job satisfaction with a value of  $-.129$ . The interaction of "black" with "military" has a coefficient of  $+.150$  but the t-value of 1.17 does not meet our test of statistical significance. The conservative approach dictates recognizing that these variables may well offset one another. These data suggest, therefore, that increases or decreases in the racial composition of the armed forces would have little overall effect on job satisfaction.

It is important to note that the results that are not statistically significant reveal a great deal about determinants of job satisfaction between the two sectors as well. For example, three variables closely tied to work activity, time on the present job, labor market experience and hours worked, all have negligible coefficients in the regression equation. So, although the military sample has higher mean values on all three of these variables, they apparently explain little of the difference in global job satisfaction. Health is potentially a variable of some interest. We had expected there would be a difference in the means between the sectors for this variable. Although there was no statistical difference, surprisingly the mean for the military sector was larger, contrary to our expectations. In addition to the larger mean, the interaction between "military" and "health" has a large negative coefficient,  $-.249$ . The t-value is 1.03.

There is a suggestion, however, that even though health problems are not too different between the sectors, those in the military who experience health problems also are not as satisfied with their jobs. To the extent military jobs require vigorous, physical activity on a frequent basis, this contrast is explicable.

In summary, we are able to explain a large percentage of the univariate difference in global job satisfaction between the two sectors. We find there is good statistical evidence that this difference could be greatly narrowed if the perceptions of those in the military could be raised to the civilian levels for these job satisfaction elements: chance to do best, .06; pleasant surroundings, .05; valuable experience, .03; good income, .10. Together these variables appear to explain about 70 percent of the .35 difference found in the univariate analysis.

Turning to the like/dislike scale, the results of the previous discussion are reinforced to a large degree. Beginning with the job satisfaction elements, we estimate that increases in these elements to the levels of the civilian means would add .027 for chance to do best, .017 for pleasant surroundings, .014 for valuable experience, and .028 for good income. Together, these variables again account for about 70 percent of the univariate difference of .16 on the like/dislike scale. The "married" variable takes on somewhat greater importance using this scale. There is a clear suggestion here that being married and being in the military lowers job satisfaction by about .034 (.077 - .111). Thus, if military men were only as likely to be married as their civilian counterparts, global job satisfaction might increase slightly. The "black" variable is an insignificant negative in this specification of

the regression equation and the interaction with "military" is again positive but not significant by our standard. The interaction of "health" and "military" again has a large negative coefficient and is very close to being significant in this equation ( $t$ -value = 1.60). None of the other variables reaches statistical significance or appears to offer any help in explaining the univariate result.

Turning to the last equation, which uses the "very" scale, we uncover an intriguing result. Although the variable "military service" is not statistically significant ( $t$ -value = 1.11) the coefficient is a large positive (.61), and it has the largest beta weight of any variable in the equation. Otherwise, on the surface, this equation does not appear too different from the others. The job satisfaction elements perform about as they did in the like/dislike equation, but in every instance the coefficients are larger. The interaction of "valuable experience" and the "military" is not a significant determinant of being very satisfied with the job. It had been significant in the other two equations. "Good income" has a coefficient which is over twice as large (+.075) as in the like/dislike equation, but there is a suggestion that the military interaction reduces this value considerably for servicemen (the coefficient is -.047 with a  $t$ -value of 1.36). The two racial/ethnic group variables are large negatives in this equation, and their interactions with military service tend to counterbalance this result but these last two coefficients are not significant. The "married" variable has a significant positive coefficient, and its military interaction is negative but not significant by our standard.



Calculation of the numerical impact of the job satisfaction elements indicates results similar to those above. It appears that increases in the mean responses of servicemen up to the civilian levels would increase global job satisfaction by .079 or about 65% of the difference of .12. These elements make the following contributions: chance to do best, .026 ( $.100 \times .26$ ); pleasant surroundings, .015 ( $.026 \times .54$ ); valuable experience, .007 ( $.048 \times .14$ ); good income, .024 ( $.028 \times .86$ ); and security, .007 ( $.028 \times .24$ ).

The analysis of the results for this equation do not go very far toward explaining the military service result itself, however. The large positive military service coefficient in the very equation suggests to us that the independent variables do not do a good job of explaining the reasons why a small cadre of servicemen, 20 percent, are very satisfied with their jobs.

Two aspects of the results presented to this point seem to have implications that may help to understand the determinants of job satisfaction for those who are very satisfied with their military jobs. One aspect deals with these very satisfied individuals in the military in comparison with others who are very satisfied with their jobs. The other aspect deals with a comparison with others in the military who like their job somewhat. First, the large, although insignificant, coefficient on military service in the very equation indicates our independent variables are not picking up some determinants of job satisfaction that are peculiar to this subsample of the military population. Thus, these people appear to respond to some aspects of job satisfaction which are quite different from the rest of the sample. Second, further indications of the possible

peculiarities in job satisfaction determinants of this 20 percent of the military are seen when comparisons are made between the like/dislike and very equations with respect to the military service dummy variable. Although this variable is not significant in either equation, its sign changes from negative in the like/dislike equation to positive in the very equation. There is a total of 67 percent of the military sample in the categories of liking their job; 20 percent like it very much, 47 percent like it somewhat. When these two groups are lumped together, military service has a negative sign; when the 47 percent is lumped with the dislike groups, military service has a positive sign. It appears then that the 20 percent subsample of the military who like their jobs very much are responding in some way to determinants of job satisfaction peculiar to the military and different from those determinants of the majority of other servicemen. It appears to us, therefore, that this subsample of servicemen who are very satisfied with their job are responding to determinants of job satisfaction which are different from those of the civilian population and different from those of others in the military. Such differences we presume, but cannot prove, may lie in the affinity of some individuals for the uniform, weaponry, or possibly danger, etc.

##### 5. Results for Branch of Service and Racial/Ethnic Group

Having shown that the coefficients on the military service variable are insignificant in each of our specifications, the possibility remains that particular branches of the service and racial/ethnic groups exert independent influence on the determination of job satisfaction. Table 6-5

TABLE 6-5  
MEANS AND STANDARD DEVIATIONS  
FOR JOB SATISFACTION REGRESSIONS:  
BRANCH OF SERVICE AND RACIAL GROUP ONLY<sup>a</sup>

	<u>Mean</u>	<u>Standard Deviation</u>
White		
Army	.023	.150
Navy	.022	.145
Air Force	.018	.133
Marine	.007	.084
Black		
Army	.012	.109
Navy	.003	.051
Air Force	.003	.056
Marine	.003	.050
Hispanic (all branches)	.006	.079
Sample Size	2264	

<sup>a</sup>Weighted data.

shows the composition of the military sample by branch and racial/ethnic group. Table 6-6 shows the results of replacing the dummy variable for military service from Table 6-4 with nine separate variables for branch and racial/ethnic group.

Looking first at the full index scale it is apparent in this formulation of job satisfaction that membership in a particular branch and racial/ethnic group exerts no independent effect on job satisfaction, other things equal. The great majority of the coefficients are positive, but the t-values are all extremely small. When the dependent value is the like/dislike formulation of job satisfaction, the coefficients all range between  $-.135$  and  $-.346$  and are the largest negatives for the Army and Marines. The t-values again are all small,  $.75$  or less. Together, these two extensions of the earlier analysis tend to confirm the finding that, other things equal, job satisfaction levels of servicemen are not different from their civilian counterparts.

As was the case when the equations with the military service dummy were discussed, the results using the very satisfied dependent variable are, perhaps, most interesting. These results in column 3 of Table 6-6 show that every independent variable for branch and racial/ethnic group has a coefficient of  $+.619$  or greater. Surprisingly, given the small sample sizes the t-values are at least  $1.11$ , and this value for blacks in the Army is  $1.62$  which is very close to the  $1.65$  required for statistical significance by our standard. The findings here obviously complement the discussion at the end of the last section, namely that those who are very satisfied with their military jobs are responding to some

TABLE 6-6  
 JOB SATISFACTION REGRESSION COEFFICIENTS  
 FOR MALES 18-22 BY BRANCH OF SERVICE AND RACIAL GROUP<sup>a,b,c</sup>

<u>Race and Service</u>	<u>Index</u>	<u>Like/Dislike</u>	<u>Very</u>
White			
Army	-.065 (.07)	-.346 (.75)	.632 (1.13)
Navy	.002 (.00)	-.291 (.62)	.619 (1.10)
Air Force	.123 (.13)	-.218 (.46)	.652 (1.13)
Marines	.042 (.04)	-.281 (.60)	.631 (1.11)
Black			
Army	.134 (.14)	-.236 (.49)	.729 (1.62)
Navy	.410 (.42)	-.135 (.27)	.773 (1.28)
Air Force	.343 (.35)	-.184 (.37)	.659 (1.10)
Marines	-.085 (.09)	-.257 (.52)	.684 (1.16)
Hispanic	.226 (.25)	-.206 (.43)	.747 (1.32)

<sup>a</sup>Weighted data

<sup>b</sup>t-values in parentheses

<sup>c</sup>These independent values replace "Military Service" in Table 6-4.  
 All other independent variables remain the same.

independent determinants of job satisfaction that are different from civilians and from the majority of others in the military, but they also indicate that whatever these independent determinants are they exist across all branches and racial/ethnic groups. That is, it appears that it is something about being in the military, as opposed to the characteristics of a particular branch or being from a particular ethnic group, that is an important determinant of being very satisfied with one's military job.

#### 6. Summary and Conclusion

This chapter initially presented results which confirmed previous studies using univariate analysis showing job satisfaction to be lower among servicemen than workers in the civilian sector. A multivariate approach using regression analysis was then attempted in order to test the hypothesis that job satisfaction is lower in the military, other things held equal. For both the univariate and multivariate analyses three dependent variables of job satisfaction were defined: (1) the full "index" scale where the values 1 to 4 were assigned the global job satisfaction responses dislike it very much, dislike it somewhat, like it somewhat, and like it very much, respectively; (2) the "like/dislike" scale where responses 3 and 4 were assigned a value of one and 1 and 2 a value of zero; and (3) the "very" scale where response 4 was assigned one and zero otherwise. Regression equations using these dependent variables and vectors of parental occupation, personal background, labor market, and five job satisfaction elements as independent variables were specified. All independent variables except those in the parental

occupation vector were interacted with a dummy variable for military service. Additionally, we included a separate dummy variable for military service in the equations, replacing it with a vector of racial/ethnic group and branch specific variables in a later specification of the job satisfaction regression.

The military service variable was insignificant in each equation reported. Analysis of these equations showed that if the means of the job satisfaction elements "chance to do best," "pleasant surroundings," "valuable experience," and "good income" for servicemen could be raised to the civilian levels, the gap between the two sectors indicated by the univariate results would be closed by approximately 70 percent. The independent variables "black" and "married" were of particular interest because their coefficients were always significant determinants of job satisfaction: negative and positive, respectively. Interactions of these variables with military service tended to offset the coefficients for the variables themselves suggesting that policies which would change the numbers of black or married servicemen would have little effect on global job satisfaction means. Similarly, education and three variables dealing with labor market experience, job tenure, and hours worked appear to have little influence on job satisfaction. We conclude that improvements in the four elements cited above, income, valuable experience, pleasant surroundings, and a chance to do one's best, offer concrete areas where job satisfaction could be enhanced for those in the military. When viewed from a policy perspective, it is improvements in these areas, rather than attempts to recruit a different kind of serviceman or change

some other aspects of the job itself, that offer the prospect of improving productivity, morale, retention, and recruitment of qualified candidates, assuming that improved job satisfaction bears favorably on these factors.

Analysis of the determinants of being very satisfied with one's job presents an interesting opportunity for further research as it concerns servicemen. We believe that there are variables not specified in this analysis, but ones which are closely tied to some aspect of the military, which are important determinants of being very satisfied with one's military job. We feel these variables are not determinants, in general, of the level of satisfaction with civilian jobs and are not important to a majority of other servicemen. Speculation would center around the opportunity to wear a uniform, be involved with weaponry, or be exposed to dangerous situations.

Replacing the military service dummy in the equations discussed above with dummy variables for branch of service and racial group showed that these independent variables added little additional explanatory power to the equations. None was significant. When these variables were entered in the equation using the very satisfied index, they were all strongly positive with t-values above 1.10. It appears then that whatever influence military service has on being very satisfied with one's job, the effect is quite constant across service branch and racial group.



APPENDIX 6-A  
DESCRIPTION OF VARIABLES  
FOR JOB SATISFACTION REGRESSIONS

Index	Coded so that 4=like it very much; 3=like it fairly well; 2=dislike it somewhat; 1=dislike it very much
Like/Dislike	Dummy variable coded so that 4 and 3 (above) = 1 and 2 and 1 = 0
Very	Dummy variable coded so that 4=1 and 3, 2, and 1=0
South	Dummy variable: 1 represents residence in the South at age 14; 0 otherwise
Health	Dummy variable: 1 represents health limits kind or amount of work; 0 otherwise
Married	Dummy variable: 1 represents presently married; 0 otherwise
Education	Years of education
Military Service	Dummy variable: 1 represents presently in the military; 0 otherwise
Civilian Black	Dummy variable: 1 represents black not presently in the military; 0 otherwise
Civilian Hispanic	Dummy variable: 1 represents Hispanic not presently in the military; 0 otherwise
Time on Job	Months of tenure on current job for civilians or time in the service for military
Labor Market Experience	In years, computed from Age - 5 - Years of Education
Hours Worked	Hours worked survey week
Chance to Do Best, Please Surroundings, Valuable Experience, Good Income, High Job Security	Each is a question concerning aspects of satisfaction with current job. They are coded: 4=very true; 3=somewhat true; 2=not too true; 1=not at all true
Military/.,.	Interactive variable constructed by multiplying military service dummy by the five satisfaction variables above.

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